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T H E  
CHIRURGICAL WORKS  
O F  
PERCIVALL POTT, F.R.S.  
Surgeon to St. BARTHOLOMEW'S  
HOSPITAL.

V O L. IV.

C O N T A I N I N G

- |  |  |
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| <p>I. A Treatise on the HYDROCELE or WATRY RUPTURE, and other Diseases of the TESTICLE, its Coats and Vessels;<br/>(Illustrated with CASES.)</p> | <p>II. An Account of the Method of obtaining a Perfect or Radical Cure of the HYDROCELE or WATRY RUPTURE, by Means of a SETON.</p> |
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L O N D O N:

Printed for L. HAWES, W. CLARKE, and R. COLLINS,  
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T R E A T I S E  
O N T H E  
H Y D R O C E L E,  
O R,  
W A T R Y R U P T U R E,  
A N D O T H E R  
D I S E A S E S of the T E S T I C L E,  
I t ' s C O A T S and V E S S E L S ;  
(I l l u s t r a t e d w i t h C A S E S .)

---

By P E R C I V A L L P O T T, F. R. S.

A N D  
S U R G E O N to St. B A R T H O L O M E W ' s H O S P I T A L.

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Cujus rei non est certa notitia, ejus opinio certum  
reperire remedium non potest.

Verumque est, ad ipsam curandi rationem nihil plus  
conferre quam Experientiam.

A. C. C E L S U S.

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The T H I R D E D I T I O N,  
I m p r o v e d w i t h v e r y c o n s i d e r a b l e A D D I T I O N S.

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L O N D O N :

Printed for L. H A W E S, W. C L A R K E, and R. C O L L I N S,  
in P a t e r n o s t e r - R o w. M. D C C. L X X I I I.

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T O

*Peter Sainthill, Esq ;*

DEAR SIR,

SOME time ago I gave you the trouble of looking over the following sheets in manuscript, with which you said you was much pleased.

The approbation of so good a judge has emboldned me to print them, and I do not know a more proper person to whom to address them.

The rank you have long and deservedly borne in the profession, and the character you have always maintained in it as an honest man, as a judicious and fair practitioner, give you a just claim to the regard of all its members.



By this address I mean to express my sense of your merit, and my estimation of your friendship; but lest what I intend as a civility should become offensive, I will not add any thing which, tho' strictly true, might have the appearance of flattery, nor make a needless recital of those good Qualities which you are so well known to possess.

I heartily wish you continuance of health, and am,

DEAR SIR,

*Your most obedient Servant,*

Watling-Street  
2 Feb. 1762.

Percivall Pott.



# P R E F A C E

To the SECOND EDITION.

*T*HE following tract, as the title expresses, is designed as a supplement to one published a few years ago; one of the objections to which was, that it was defective in matter, and ought to have comprehended the false herniæ; they being as real diseases, and requiring Chirurgical assistance as much as the true.

This deficiency I have now endeavoured to supply in the best manner I am able.

When I began to put these papers in order, I did not think they would have run to such a length; and when they were finished, I did not know how to shorten them without rendering them less explicit.

*I am perfectly sensible that some parts of them will appear prolix and diffuse, and that such manner of writing is in general very justly objected to ; but yet cannot help thinking that sometimes it may be excusable, or even necessary.*

*When application is made to the judgment merely, and information is intended to be conveyed to many people of different capacities, it may become necessary to set the same object in several different lights ; and to repeat the same thoughts many times in different words : to those who have not been much conversant with the thing treated of, a studied brevity would become a perplexing obscurity ; however satisfied such readers might be with the stile of the writer, they would not be made sufficiently acquainted with the subject ; they might be pleased, but they would not be informed.*



*I should indeed be very sorry to have conveyed my meaning in such manner as to disgust the judicious ; but as my principal intention was to instruct the unknowing, my chief aim has been perspicuity. If the learned, and critical are not displeased, I shall be glad ; if the ignorant gain any knowledge, I shall be much more so. The character of an elegant writer I make no pretension to ; that of a skilful surgeon, and of a man who has done some good in the way of his profession, I should be extremely glad to deserve.*

---

*With regard to this second edition, all I have to say, is, that it has cost me some time, and trouble ; that it contains many additions to the former ; and, that I hope the reader will find it, not only a more correct, but a more instructive book.*





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ON THE  
H Y D R O C E L E, &c.

S E C T I O N I.

**T**H E various diseases comprehended under the general term **H E R N I A**, have, by surgeons, been divided into two classes; one of which they have distinguished by the epithet *true*, the other they have called *false*, or *spurious*.

Under the first, they have ranged all those tumors, which are produced, either by the *descent*, or *protrusion*, of some of those parts, which should naturally be contained within the cavity of the abdomen;

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but

but which, by being displaced from their proper situation, form swellings in the navel, groin, belly, scrotum, and thigh.

By the second, they mean all such diseases of the testicles, their coats, and vessels, as proceed from, or are accompanied by, the induration, enlargement, or other morbid affection of such parts; or occasion the lodgement, or accumulation, of extravasated fluid within them.

So that what are generally called *true Herniæ*, are tumors occasioned by the removal of certain parts, from their proper and natural situation; such parts still remaining, in general, sound, and free from disease: while those termed *false*, are original disorders of the parts themselves, in which they are seated: a distinction, which is invariably true, and very necessary to be attended to, by all who would understand the real nature of each. A part of the intestinal canal, or of the omentum; the stomach; uterus; or bladder; are what most frequently make the contents of the former: a varicous distension of the spermatic vessels; extravasated blood, or water, within the membranes, either of the testicle, or of the spermatic vessels; an inflammatory enlargement,



ment, and a scirrhus or cancerous state of the testis itself, constitutes the latter.

The *true herniæ* receive their distinguishing appellations, either from the particular part of the body in which the swelling makes its appearance ; or from what is contained within such tumor : and are, therefore, called *inguinal, scrotal, umbilical, and ventral* ; or intestinal and omental ruptures. The spurious derive their names, either from their supposed contents, as the *pneumatocele, hæmatocele, and hydrocele* ; or from the alteration made by the disease in the natural structure of the parts concerned, as the *varicocele, cirsocele, and sarcocèle* : to which some have added that inflammatory defluxion on the testicle, commonly called *hernia humoralis*.

The *pneumatocele* is a mistake ; there is no tumor of this kind, and in this situation, in a living animal : it is, indeed, particularly described by many writers, both ancient and modern ; and said to be a disorder to which infants are particularly liable : but the complaint so described, and which nurses and ignorant people do still call a *wind-rupture*, is not what they take it for ; neither is it produced by wind : it

is, either a true *intestinal hernia*, or a species of hydrocele ; which will be taken notice of hereafter. The *sarcocele* (which is an enlargement, and distension of the blood-vessels of the scrotum) is very seldom an original disease, independant of any other ; and when it is, is hardly an object of surgery.

The *cirsocele*, or varicous state of the spermatic vein, though it be really a disease, and sometimes very troublesome to those who are afflicted with it, yet is seldom capable of much relief, beyond that of a suspensory bandage.

## S E C T. II.

### OF THE HYDROCELE IN GENERAL.

**T**H E term *hydrocele*, if used in a literal sense, means any tumor produced by water ; but surgeons have always confined it to those which possess, either the membranes of the scrotum, or the coats of the testicle, and its vessels.

The first of these, *viz*, that which has its seat in the membranes of the scrotum, is  
common



common to the whole bag ; and to all the cellular substance, which loosely envelopes both the testes. It is, strictly speaking, only a symptom of a disease ; in which the whole habit is, most frequently, more or less concerned, and very seldom affects this part only\*. The latter, or those which occupy the coats immediately investing the testicle, and its vessels, are absolutely local ; very seldom affect the common membrane of the scrotum ; generally attack one side only ; and are frequently found in persons, who are perfectly free from all other complaints.

Notwithstanding the obvious and material difference between the two kinds of disease, they have by the majority of writers been confounded together ; have been considered as springing from the same immediate source, and as requiring the same kind of treatment ; although the one is plainly and evidently, a mere symptom or attendant on a general disorder ; and the others are strictly and absolutely local complaints. This one fundamental error, has

B 3

been

\* I have seen a true anasarcaous, watry distension of the cells of the dartos, confined to one side of the scrotum only.

been the occasion of many others. The supposition, that all collections found in the membranes, and coats, of the scrotum and testicles, are of the same general kind, has produced an infinite variety of wild conjectures, concerning the particular and immediate nature, and origin of them. By some they have been attributed to a particular indisposition of the liver, kidneys, or spleen; by others, to a natural and necessary connection between the spermatic vessels and those of the kidney. By many the fluid has been thought to be of the urinary kind; or at least that it ought to have passed through the kidney; but that, mistaking its right way, it gets into the membranes of the scrotum and testicles\*. While others

\* “Supervenit quandoque ex causa aliqua externa et manifesta, ut ictu, casu, &c. Crebro vero, ex latente, et non manifesta. Quæ ab externa causa accessit, aut dextrum, aut sinistrum renem indifferenter affligit; a latente vero, et non manifesta causa originem ducens, nunquam alium quam sinistrum.” Schenkii, Obs.

“Rene, hoc malo affecto, nec officio suo probe fungente, urinæ pars quam emulgens hæc ad se pertrahit, cum ad vesicam per male affectum renem non potest descendere, per feminalem in erythroideam delabitur; hoc modo hydrocelem ingenerans.”

“Hinc



others have affirmed, that all complaints of this kind, are really symptoms of a dropfical habit; that the fluid comes from the cavity of the belly; and either passes thro' the peritoneum, or extends that membrane down into the scrotum\*. Many cautions have been laid down against attempting the cure of one species of this disease hastily, or without a previous course of medicine, upon a supposition that the defluxion is of a noxious nature; and that by falling on this

B 4

part,

“ Hinc apparet et abunde manifestum est, quæ obrem  
 “ hydrocele haud ab externa, sed a latente originem du-  
 “ cens, non nisi in sinistram membranam incidat; et hu-  
 “ jus testem affligat.” Schenkius.

“ Hernia aquosa, si a causa interna et latente origi-  
 “ nem ducit, ut plurimum sinistram partem scroti occu-  
 “ pat; serosusque ille humor, in membrana testem in-  
 “ volvente, erythroiden dicta, colligitur: idque fit præ-  
 “ cipue, rene sinistro male affecto; quapropter serosos  
 “ humores non attrahens, et ad vesicam non mittens,  
 “ per venam seminariam, quæ in isto latere, ex emul-  
 “ gente procedit, in membranam erythroiden delabitur.”  
 Gul. Fab. Hildanus.

“ Ne serosus humor qui a rene attrahi non potest in  
 “ abdomine retineatur.” Hildanus.

“ Si hernia fiat ex humoribus venientibus a renibus ad  
 “ testiculum, cognoscitur tactu.” Lanfranc.

\*“ Colligitur liquor in hypochondriis, qui facile de-  
 “ scendit.” Fab ab. Aquapend.

“ Aliquando descendit aqua illuc sicut descendit in  
 “ hydropicis.” Lanfranc.

part, it frees the constitution from several other distempers\*. It has been described, as frequently producing a corrupted, or otherwise diseased testicle†; as being nearly allied in nature to those tumors which are called encysted, whose tunics are formed out of the common membrane by mere pressure; and as being generally accompanied with a true hernia, or descent of the intestine, or omentum; which last (supposed) circumstance has been gravely urged  
as

\* “Sæpe ego vidi multos per hernias liberatos esse a  
“gravibus affectibus; ab empyemate, hydrope pulmo-  
“nis, &c. unde si penitus sanetur, poterit multos mor-  
“bos postea inferre.” Fallopius.

† “Testis autem substantia, ab acrimonia humoris,  
“successu temporis corrumpitur.” Schenkiius.

“Sciendum est, quod in hernia illa, in qua contine-  
“tur aqua in vagina testis, et quæ aliquantisper sit di-  
“uturna, corruptus est testis.” Fallopius.

“Ubi paulo diutius humor iste intus relinquitur me-  
“tuendum est ne testiculus sensim cum eodem corrup-  
“patur, vel occalescat, atque ita scirrhum, vel sarco-  
“celen, vel cancrum tandem sentiat.” Heister.

“Nescilicet collectum in scroto serum per acredinem  
“paulatim contractam partes internas, et cum primis  
“testiculum, corrumpat; et noxam magis periculosam  
“efficiet.” Heister.

“Notandum vero aquam in scroto non esse diu re-  
“linquendam ne a mora testis corrumpatur; vel una  
“cum aqua adveniat hernia carnosæ et caro concre-  
“cat.” Fab. ab Aquapendente.



as a reason for not attempting a radical cure\*. The same wanton liberty has been taken, in assigning different seats to these disorders; as in accounting for their origin: every part which invests, or accompanies, the spermatic vessels, or the testicles; not only the tunica communis of the process, and the cavity of the tunica vaginalis (the true and real seats of one or other of these disorders) have been enumerated, but several imaginary ones have been added; firm,

\* The opinion of the late Mr. Cheselden on this subject, is so singular, and so little consonant to truth, or nature, that I shall take the liberty to repeat his words, lest his great character should mislead the unwary. In the last edition of his anatomy, p. 264, he says, “ The true hernia aquosa is from the abdomen, which either extends the peritoneum into the scrotum, or breaks it; and then forms a new membrane which thickens as it extends, as in aneurisms and the atheromatous tumors: the dropsey in the cyst (for such it properly is) rarely admits of more than a palliative cure by puncture, or tapping, like the dropsey of the abdomen; and this with some difficulty, because the omentum generally, and sometimes the gut, descends with it.” Which is so far from being the case, that unless in the particular, and very singular instance of a combination of an hydrocele with a congenial hernia, it never can happen; the bags or sacs of an hydrocele, and of a hernia, being in all other instances totally different; and the former never having any communication with the belly.

firm, compact membranes have been split into lamellæ ; and cysts and coats have been devised, which never had a real existence.

If all this was matter of mere speculation, and produced no mischief in practice, it would be of no importance ; but in matters of physic and surgery, this seldom or never happens : erroneous ideas of the nature, origin, and seats of diseases, most commonly are followed by improper methods of treating them. In the present case, the absurdity of the conjectures, concerning these circumstances in the disorder, is fully equalled by the methods of cure, which have been proposed and practised.

Upon a supposition, that the extravasation of fluid was the consequence of a dropical habit, strong purges and powerfully diuretic medicines have been prescribed ; actual cauteries have been used ; and ligatures and incisions made both on the spermatic vessels, and in the groin, to hinder the descent of the water from the cavity of the belly\* ; astringent liquors and ardent spirits have

\* “ Et cum totam evacuaveris aquam, cauteriza locum quem aperuisti ; et fac duo cauteria punctualia in inguina, ex utraque parte unum, supra didymum ;  
“ quod



have been injected, with a view to closing, or foldering broken lymphatics; tedious and painful operations have been practised, for the eradication of imaginary cysts; directions have been given to evacuate the water at different times, lest the patient's strength should fail, or his health suffer, by its being done too suddenly; and the testicles being supposed to be frequently spoiled, by long laying in the water, castration

“ quod si non cauterizes, aqua iterum redit. Sed cauteria redire materiam iterum non permittunt.” Lanfranc.

“ Et iterum redit nisi cauterizetur post perforationem.

“ Brunus. In apertione duplex est intentio, scilicet

“ aperire et prohibere ne rursus aqua descendat.” Fab. ab Aquapend.

“ Avicennas utitur ferramentis candentibus in regione inguinis ut corrugatur pars, ne aqua posset descendere.” Fab. ab. Aquapend.

“ Sin autem in rene vitium non fuerit, et defluxum plane impedire volueris, incisionem, superiore parte scroti prope inguina, fieri expedit; quandoquidem duplex chirurgo est scopus; prior evacuare serosum humorem, posterior prohibere nec de novo aqua in scrotum defluat.”

“ Et quia tota aqua in tunica illa, (nempe vaginali) continebatur, ita ut testiculus ei innataret, ne in posterum denuo descenderet aqua, acu incurvato ac filo reduplicato universam hanc tunicam (præter vasa seminalia) apprehendi et mediocriter constrinxi, atque ligavi.” Fab. Hildanus,

tion has often been performed in the simple hydrocele.

Dr. Monro (the father) who is professor of anatomy at Edinburgh, and Mr. Samuel Sharp, late surgeon to Guy's Hospital, are almost the only writers, who have sensibly and rationally explained the true nature and theory of these diseases : to them the profession is greatly obliged, for having thrown much light on the subject ; and for having furnished their readers with more just ideas than any other writers.

### S E C T. III.

**T**H E spermatic vessels, like most of the contents of the abdomen, lye behind the peritoneum ; enveloped in the common tela cellulosa, or what used to be called the cellular appendix of the peritoneum. The arteries, which are two, arise from the trunk of the aorta, in the midway between the emulgent, and lower mesentery. At their origin they are very small, and, contrary to all the other arteries of the body, they seem rather to increase in diameter as they descend. In their pas-



passage downward, they impart several branches to the cellular membrane which invests them ; and before they arrive at the testicles, they are divided into four or five principal ones ; one of these goes to the epididymis, the others to the testis : the latter having passed the tunica albuginea, and being convoluted in a most wonderful manner, compose the greatest part of the body of that gland. From these convolutions of the spermatic artery, the semen is secreted : which fluid is, after such secretion, immediately received by those particular vessels, which late anatomists have agreed to call the vasa efferentia. These vary in their number, in different subjects, being from ten to fifteen, more or less. When collected together, they form the globus major, or larger extremity of that body, which, from its situation, is called epididymis. After this, they unite into one single tube, which being convoluted and contorted, in the most miraculous manner, constitutes the rest of that same body. So that the whole of the epididymis, except that immediate point which is formed by the concurrence of the vasa efferentia, does really consist of one single tube, whose diameter

meter is said, in no part, to exceed the eightieth of an inch, but which is contorted some thousands of times; and if unravelled, and drawn out, is some yards in length. From the lesser extremity of the epididymis proceeds the vas deferens, or that tube through which the semen is conveyed from the testis toward the penis; or, in other words, when this wonderful tube ceases to be convoluted, and puts on the appearance of one single, smooth, vessel, it is then called vas deferens. This arises from the lesser end of the epididymis, enveloped in the same common tela cellulosa, in which the spermatic artery and vein are invested; and when it has got just above the edge of the os pubis, it separates from the said vessels, and passing down behind the peritoneum, proceeds to the inferior part of the neck of the bladder; where it deposits the semen, in the receptacles appointed for that purpose, called the vesiculæ feminales.

The blood, after the seminal secretion is performed, returns back into the general mass, by the spermatic vein; which, on the right side empties itself into the vena cava, and on the left into the emulgent.

While



While the spermatic vessels are within the cavity of the belly, the cellular membrane, in which they are enveloped, is much more lax and tender, and is indued with larger cells, than it is on the outside of the same cavity. As they go *under* the transversalis, and obliquus internus muscle, and *through* the obliquus externus, they receive a considerable addition of cellular membrane from the adjacent parts ; and, when they have passed through the tendinous aperture of the last-named muscle, they, together with their cellular tunic, \* are covered by, and enveloped in, that  
ex-

\* The passage of the spermatic vessels *under* two of the muscles, and *through* the third, is a circumstance of much importance, and what every practitioner ought to be well acquainted with.

The common doctrine is, that in each of the oblique muscles and in the transversalis is a tendinous aperture, for the transit of the spermatic chord ; and these supposed openings are called the *rings*. This is a mistake, which even some very modern writers in anatomy have fallen into : and lest their word should not convey an idea sufficiently erroneous, some of them have given us drawings of all these openings in regular gradations, above and behind each other. Nothing can be more false than such representation: the spermatic vessels do never pass *through*, but always *under* the transversalis and obliquus internus, at such distance as never to be affected by their action, or to  
suffer

expansion of muscular fibres, called the cremaster.

The membrane surrounding all that part of the spermatic vessels, which is on the outside of the abdomen, is called the tunica communis, or tunica vaginalis of the chord; and is (as has already been said) merely cellular; totally void of all other cavity than its cells; firmly adherent to the surface of the said vessels, in every part; and plentifully furnished with lymphatics.

It is of very great importance to have a just idea of the structure of this part of the tunculus spermaticus; the old term, tunica vaginalis, conveyed a very false one: it implied, that the vessels were contained within it, as in a sheath; and that, if the said vessels were not there, this coat would  
form

suffer any stricture or strangulation from them. On the contrary, the spermatic chord always passes through an opening made for that purpose in the tendon of the obliquus externus; the action of which it is liable to be affected by; and when it is accompanied by a portion of intestine (as in the case of an hernia) it is this tendinous aperture, which produces the stricture, the symptoms, and the hazard. A circumstance of great consequence for every man to know, who may ever be called upon to operate on a strangulated hernia.



form an empty bag, consisting of one cavity only ; than which nothing can be more untrue\*.

This is one great source, from whence many of the errors, which have been committed in the description of such diseases, as have (or are supposed to have) their seat in this part, have sprung : and therefore I take the liberty of repeating, that this tunic has no one particular cavity ; but is a mere cellular membrane throughout its whole extent ; and that it terminates, in a great measure, just above the epididymis, though a continuation of it may be traced on the surface of the tunica vaginalis testis.

The coats of the testicle are two only ; *viz.* the tunica vaginalis, or that bag which loosely invests it, without any adhesion to

C it,

\* Even M. de la Faye, whose notes on Dionis have rendered the works of the latter more useful, has fallen into the common mistake with regard to this tunic, by supposing both it and the vaginalis to be formed out of the same membrane, and allotting a cavity or bag to the former. “ Il faut remarquer, que la tunique vaginale, “ et la gaine du cordon spermatique sont une continuation du tiffue celluleux du peritoine, qui s’ allonge “ pour enveloper le testicule ; a l’ endroit, ou cette continuation s’ elargit, la nature a formi une cloison qui “ empeche la communication qui se trouveroit entre l’ “ interieur de la gaine du cordon spermatique, et celui de la tunique vaginale.” De la Faye.

it, except in one particular part; and the tunica albuginea, or that membrane, which is the immediate and proper covering of its vascular structure. A true and clear idea of these is absolutely necessary to the right understanding the diseases to which this gland is subject. In order to obtain such idea, the testicles must be examined, not only in an adult state, but in the infantine, and in that before birth also: each of these states having its peculiarities; and all tending to explain the true nature of such maladies, as it is frequently subject to.

The testicles of the human species are always formed within the cavity of the belly, and remain there until, or very near unto the time of birth. While they are within the abdomen, they are covered by one coat only; which coat firmly adheres to the vascular structure of them, and is evidently derived from the peritoneum, in the same manner as the outer coat of each of the viscera of the said cavity is. Their situation, during the first months, is higher than in the latter; and as the fœtus increases in size, they slip gradually lower. Within the cavity of the abdomen, on each  
side.



side, a little below the testes, is a small opening, or orifice, which leads immediately into a small, but firm membranous bag, or cyst, whose upper part, or neck, passes through the opening in the tendons of the obliqui externi muscles; while its lower part, or sacculus, lies on the outside of the said muscles in the groin, enveloped in the common tela cellulosa. These orifices are always open until birth; and most frequently, for some while after: during all which space of time, the said sacculi have free and open communication with the cavity of the belly.

By means of these orifices, the testicles pass from the cavity of the abdomen, thro' the tendinous apertures, into the sacculi in the groins. But the time, in which they make this transit, is by no means certain. Sometimes it is just before birth; sometimes just after; sometimes they drop immediately into the scrotum; and sometimes they remain a considerable time in the groins: and it now and then happens, that they never pass through the muscle at all, but remain for ever within the belly. These are a kind of *lufus naturæ*; but in the ordinary course, they soon pass from



the groins into the scrotal bags, the communication between the said bags and the belly continuing open some little time longer.

When the testicles are got fairly down into the facculi, if the said facculi be laid open, it will appear that the testicles are loosely enveloped by them, in such a manner as to be perfectly free from all cohesion; except in one part, where this bag and the proper coat of the testicle (the albuginea) are so firmly united, as to be plainly and demonstrably a continuation of one and the same membrane. And while the communication with the belly continues free and open, if the facculi be divided from the bottom upward, it will as evidently appear, that the membrane of which they are composed, is a continuation, or process, of that part of the peritoneum, which lines the muscles of the abdomen.

Some time after birth, the necks of these facculi become close and impervious; and from that time all communication between their cavities and that of the belly ceases. The time when this happens is various and uncertain; I have seen them perfectly closed within a week, and open at the end  
of

of two months, nor do they both necessarily become close, at the same time in the same subject.

It sometimes happens, that while these passages are open, a piece of omentum or intestine insinuates itself into one of them, and preventing its closing, produces what Haller calls a congenial hernia: a disease, which though a modern discovery, has always been very frequent. It also sometimes happens, that the spermatic vessels not being sufficiently closed, one of the testicles rests in the groin, just without the opening in the abdominal muscle, and by not becoming pendulous in the scrotum, the orifice of the neck of the sacculus is not closed at all; even though no portion of gut or caul has got into it.

When these orifices have been once perfectly closed, there never is any future communication between the cavities of the sacculi and that of the belly; nor can any thing solid or fluid (however small in size or quantity) ever, after this period, pass from the one to the other. The upper part, or neck, now loses all appearance of a distinct canal; and the lower part, or sac, loosely invests the testicle, and its epididymis,



without any adhesion, except in the hinder part. The inside or cavity of this sac is constantly kept moist, by the exudation of a fine fluid ; which fluid is as constantly absorbed : so that while these parts enjoy a sound healthy state, the fluid is no more in quantity, than what just serves to lubricate, and keep moist the surfaces of both membranes, and thereby prevent any unnatural cohesion of them with each other.

From these premises, the following inferences, serving to point out, and explain, the true nature and seat of some of the diseases in question, may, I think, be deduced.

1. That the sacculi, or bags, found in the groins, are originally-formed parts.

2. That they are placed there for the future reception of the testicles ; and that when the upper part, or neck, of one of them becomes close and impervious, the lower part, or sacculus, constitutes and forms, what is properly called the tunica vaginalis testis ; which is therefore a true and original process of the peritoneum.

3. That of all the parts contained within the scrotum, these sacculi are the only ones  
which



which ever naturally communicate with the cavity of the belly.

4. That, after a certain space of time, that communication ceases.

5. That whatever fluid may be shed from the spermatic vessels, or collected, or extravasated, in the cells of the tunica communis, or in those of the dartos; yet no part of such fluid can be derived from, or received into the cavity of the tunica vaginalis testis.

6. That a total failure of the secretion of that fine fluid, which should moisten the inside of the vaginal tunic, and the outside of the albuginea, must be followed by an unnatural cohesion of these membranes with each other; and either a partial or total abolition of the cavity of the former.

7. That if more of this fluid be deposited, than the absorbent vessels can take up; or if the absorbent vessels do not execute their office, such fluid must be accumulated within the cavity of the said tunic: from which their being no natural outlet, the consequence must be a gradual distention and enlargement of it.

8. That the natural communication between the cavity of the tunica vaginalis and

the belly, not being shut until some space of time after birth, it may become close at its upper part, while there is a quantity of fluid in the lower, too large for the absorbent vessels to take up immediately; and consequently, that such infant will, until that office be executed, labour under a true hydrocele of the tunica vaginalis testis: a case, which is very frequent, though generally mistaken for a wind-rupture.

And 9, That the fluid of that kind of hydrocele, which is formed by the sac of a congenial hernia, must be lodged within the cavity of the vaginal coat: while all collections of serum, in the sacs of all other kinds of herniæ, must necessarily be perfectly distinct from the said tunic.

I should now proceed to the examination of each distinct species of hydrocele; but will intrude on my reader's patience while I mention a circumstance or two, relative to the passage of the testicle from the belly into the scrotum; and which, as a practitioner, he may possibly think worth his attention.

I have said, that the time in, or at which the testicles pass from the belly, through the groin, into the scrotum, is by no means certain;



tain; that it varies in different people; that even in the same person, the two testes do not always pass down at the same time; that sometimes both of them, sometimes one, remains within the belly, or in the groin, for a considerable space of time after birth; and that it now and then happens, that one, or both of them, never get into the scrotum at all.

I do not know any particular inconvenience arising from the detention of a testicle within the cavity of the belly; but the lodgment of it in the groin, not only renders it liable to be hurt by accidental pressure, &c. but when it is so hurt, may be the cause of its being mistaken for a different disease, and thereby occasion its being very improperly treated. To which considerations, this may be added: that there is no kind of disease, to which the testicle is liable in its natural situation, but what may also affect it, in any, or all its unnatural ones.

### C A S E I.

**I** WAS sent to in a great hurry, from the neighbourhood of Limehouse, and desired to bring with me, whatever I might want



want for the operation of a bubonocoele. I found a young, healthy, seafaring man, lying across his bed, and complaining of most acute pain in his groin and back. He told me, that “ in the forenoon of the day before, being at work on board his own vessel, he fell, and struck his groin against a piece of timber, with great violence ; that it gave him such exquisite pain, that he fainted away ; that his groin became immediately swollen to a very considerable degree ; that as soon as he could get home, he applied to his apothecary, who bled him, put him to bed, and pulticed the tumor ; that he passed the night without sleep, and in great agony ; that when his apothecary came to him the next morning, he (the patient) informed him of a circumstance, which, in his confusion, he had forgot the night before, *viz.* that he had long had a rupture on that side, which had never been perfectly returned ; that, upon receipt of this information, the apothecary had bled him again, and had taken some pains to return the rupture : but finding that he made no progress, and that his attempts produced great increase of pain, he had desisted, and had given him two glysters,

sters, and a purge ; neither of which occasioning such discharge as he expected, and a kind of blackness now beginning to appear on the part, he desired immediate assistance." By the time this account was finished, the apothecary came in, and confirmed it.

The pain was exquisite ; and while I was asking the patient a few questions, he became very sick, and vomited. The groin and scrotum were much swelled, and very hard ; but the general figure and appearance of the tumor did not appear to me like that of a bubonocoele : instead of pointing obliquely from the ilium toward the pubes, it lay, as it were, across the groin : the scrotum was full and large ; but I thought it felt much harder, than I had ever found a piece of intestine do : and with regard to the alteration of color, I cannot say it gave me much uneasiness ; for it was not at all like the effect of mortification, but had all the appearance of an extravasation, or echymosis. On the other hand, the man had not had a fair stool for three days ; he had been very sick, and had vomited ; his belly was tight, hard and painful ; and his pulse much too quick.

From



From examination of the tumor, I could get very little information ; for th pain was so exquisite, that he could not bear the slightest touch ; however, from what examination I could make, it appeared to me, that if this was an intestinal hernia, it was such a one as I had never yet met with ; and nothing but the circumstance of his having worn a truss formerly, by the direction of a surgeon of character, could have induced me to have entertained such suspicion. I enquired again, concerning this rupture ; and was told, that he had worn a truss for it, the first four years of his infancy, but that it never kept the gut totally or perfectly up ; and that as he grew bigger, and ran about, he was obliged to leave it off, on account of the pain it gave him : that since he had left it off, he had not observed any, or very little, alteration in the tumor ; (none in its situation, though a little in its size :) and that it had never given him any trouble, or uneasiness, if he did not handle it, or kept his waistband of his breeches and his watch from pressing it. All this was far from being satisfactory : and as the present state of the parts was such, as was by no means favourable for an operation,

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ration, I determined, previous to any other attempt, to try what a brisk cathartic would produce. A stimulating glyster was immediately thrown up, and a solution of an ounce and a half of glauber's salts in two ounces of infus. senæ swallowed, which, in little more than an hour, produced so plentiful a discharge, that the belly became soft and easy, and we were perfectly free from all apprehensions of a stricture. Fomentation, pultice, &c. were frequently applied to the tumor, which in three or four days began to subside ; and in about seven or eight, the scrotum was so unloaded, as to permit easy and accurate examination ; by which means we were satisfied, that it contained no testicle. Upon mentioning this circumstance to the patient, he said, that he never had one on that side : this declaration was a solution of all difficulties, and of all the appearances. When all the effects of the blow were removed, there appeared in the groin, just on this side of the opening in the abdominal tendon, a testicle of natural size and figure ; which testicle, by being much bruised, had caused all the mischief.

## C A S E II.

**A** Poor man came to St. Bartholomew's Hospital, and desired assistance for a swelling in his groin ; for which he had, for a month before, been taking jesuits drops and other quack medicines, till he had not a farthing left. Upon removing an adhesive plaster, I found a tumor, which was large and painful ; but at the same time so moveable, as to be very unlike any affection of the inguinal glands. The account which the man gave, was, that " he had always had a lump in that groin, and never any testicle on that side ; that when young, he had worn a truss for it, upon a supposition of its being a rupture ; that when he came to work for his living, he could no longer bear the uneasiness which the truss gave him, and therefore had left it off for years : that since that time, he had never perceived any material alteration in the tumor, nor had it ever given him any trouble, till he had got a clap about two months before ; upon the sudden disappearance of which, the lump in his groin became large and painful."

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In short, the man had got a hernia humoralis of the testicle in his groin ; which, by means of proper treatment, bleeding, cataplasm and rest, he soon got well of.

### C A S E III.

**A** Middle aged man came to St. Bartholomew's, for advice for a tumor in his groin.

He was apparently in good health ; the tumor was of an oval, or egg-like form ; indolent, when not pressed ; perfectly moveable ; lay just in the groin ; and had, by more than one person, been mistaken both for bubo and bubonoccele. When handled, or pressed rudely, in consequence of the latter opinion, it was painful for some hours after ; and the pains (to use his own words) always shot up into his back. It was on the left side ; on which side there was no testicle in the scrotum, nor had there ever been one ; but on the right side every thing was as it should be. He said, that within two years it had been considerably enlarged ; and that it now was become very troublesome to him.



It appeared very plainly to me, that the tumor was caused by the left testicle ; which testicle was in a diseased state, but very fit for, and very capable of extirpation. I advised the man to submit to the operation, and he had complied ; but the late Mr. Griffiths (one of our then assistants) coming into the ward, I desired him to look at the case. Whether he did not attend to all the circumstances, or for what other reason, I know not ; but he took it into his head, that it was a tumor of another kind, that might be removed by internal medicine ; and dissuaded the man from undergoing what I had proposed : upon which, I did not take him into the Hospital.

Some months after, the swelling becoming larger, and more troublesome, he applied to St. George's Hospital. The gentlemen there gave him the same opinion, and the same advice which I had given him ; he submitted, and got a cure, by the removal of a testicle which had never been lower than his groin, and which was now become scirrhus.

C A S E

C A S E IV.

**T**HE late Mr. Hollingworth desired me to go with him, to see a patient in the neighbourhood of Clerkenwell. It was a man, about fifty-five years old, who had a large, ulcerated, cancerous tumor, in his right groin; with high callous edges; it always discharged a large quantity of a most offensive gleet; at times it bled profusely, and was always extremely painful.

The patient said, that when first it became troublesome, he had showed it to two eminent rupture-curers; one of whom said, that it was a piece of caul, and offered, for twenty guineas, to cure him by cutting it out: the other, (more modest, or less hardy,) only sold him two bandages for it; neither of which he could ever wear.

When Mr. Hollingworth carried me to see it, it had just been left by a cancer-curer, who had applied to it an escharotic; and which, by the patient's account, as well as by the appearance of the sore, had made terrible havock.

During all this time, no one who had seen him (and what is still more remark-

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able) not even the patient himself had remarked, that in that side of the scrotum he had no testicle.

The state, both of the man and of the fore, forbid any chirurgical process; and my advice to him was to dress the fore lightly, and have recourse to tinct. thebaic. for ease: which advice he followed, during the short remainder of his life:

When dead we examined him, and found that the disease consisted in a cancerous testicle lying in the groin; the spermatic vessels of which were varicose, and knotty all the way up to the kidney, having here and there a bladder of yellow serum in the cellular membrane: the lymphatic glands about the vertebræ of the loins were diseased, as was the liver; and on the surface of the right kidney was a collection of very offensive sanies.

S E C T.



## S E C T. IV.

T H E A N A S A R C O U S T U M O R O F  
T H E S C R O T U M.

**T**H E scrotum is the common receptacle of both the testicles ; and consists of the cuticula, cutis, and what all the anatomists have now agreed to call the dartos ; which is a loose cellular membrane, perfectly void of fat ; and whose cells or cavities, communicate with each other, with the utmost freedom through every part.

As this membrane has no immediate communication with the cavity of the abdomen within the peritoneum, it is plain, that whatever kind, or quantity of fluid may be deposited in it, it cannot be derived from the said cavity ; even though the patient should labour under a true ascites ; but as its cells have a free intercourse with those of the general cellular membrane all over the body, they will be liable to be affected by all those disorders which have their seat in that membrane ; that is, by all disorders proceeding from a low impoverished state

of blood ; from a deficiency of the urinary secretion ; or from non-execution of the office of the absorbent vessels : and consequently in anasaruous, and leucophlegmatic habits will become the seat of a watry extravasation.

This watry swelling of the scrotum, although it is most frequently a symptom of a dropfical habit, and very often accompanies both the general anasarca, and the particular collection within the abdomen, called the ascites, yet, even in the latter case, neither is, nor can be, derived from the cavity of the belly ; but is confined to the tela cellulosa, which lies on the outside of the peritoneum : the water derived from hence distends the scrotum, in the same manner, and for the same reasons, that it often does the legs and feet. The cells of the dartos being large and absolutely void of fat, and the skin which covers them being extremely dilatable, and giving way for a larger influx into this part than into most others, has indeed occasioned its being taken notice of as a particular disease, tho' it is most properly a symptom only.

This being the case, and the true method of cure consisting in an internal medicinal



cal process, it has been, I think, improperly ranked among the species of hydrocele; though the nature of the contents will certainly admit the use of the word.

It is indeed a disease, which properly belongs to the physicians: but as it is of some consequence, to be able to distinguish it from other disorders affecting the same, or the neighbouring parts; and as surgeons are often called upon to assist in alleviating some of the inconveniences which this effluxion produces, it cannot be amiss in this place, to give a short account of it, and of the most proper surgical method of attempting its relief.

It is an equal, soft tumor, possessing every part of the cellular membrane, in which both the testicles are enveloped; and consequently is generally as large on one side, as on the other: it leaves the skin of its natural color; or, to speak more properly, it does not redden or inflame it: if the quantity of water be not large, nor the distension great, the skin preserves some degree of rugosity: the tumor has a doughy kind of feel; easily receives, and, for a while retains the impression of the fingers: the raphe or seam of the scrotum divides



the swelling nearly equally : the spermatic process is perfectly free, and of its natural size : and the testicles seem to be in the middle of the loaded membrane. This is the appearance, when the disease is in a moderate degree. But if the quantity of extravasated serum be large, or the disease farther advanced, the skin, instead of being wrinkled, is smooth, tense, and plainly shews the limpid state of the fluid underneath : it is cold to the touch, does not so long retain the impression of the finger, and is always accompanied with a similar distention of the skin of the penis : the preputium of which is sometimes so enlarged, and so twisted, and distorted, as to make a very disagreeable appearance. These are the local symptoms : to which it may be added, that a yellow countenance, a loss of appetite, a deficiency of urinary secretion, swelled legs, a hard belly, and mucous stools, are its very frequent companions.

The cure of the original disease comes, as I have already said, within the province of the physician, and requires a course of internal medicine : but sometimes the loaded scrotum and penis are so troublesome  
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some to the patient, and in such danger of mortification, that a reduction of their size becomes absolutely necessary ; and at other times a derivation, or discharge, of the redundant extravasated serum from this part, is ordered as an assistant to the internal regimen.

The chirurgical means in use for this end, is called in general scarification : a term, whose precise sense has by no means been settled ; by which it has now and then happened, that a general order being given, and the particular method of executing it being left to the choice of those who have not been sufficiently acquainted with this kind of business, much hazard has been incurred, and considerable mischief done, which might have been avoided.

The means of making this discharge are two, *viz.* puncture and incision : the former is made with the point of a lancet ; the latter with the same instrument, or with a knife.

The generality of writers on this subject have spoken on the two methods, in such a manner, that a practitioner, who had seen but little of either, would be inclined to



think, that it was matter of great indifference, which we should make use of; and that the safety and utility of each were equal: which is by no means the case.

The intention of the use of either, is, by a discharge of extravasated serum, to alleviate the present uneasiness; and, by reducing the size of the scrotum, to render it less troublesome, and less likely to mortify. In some few instances, it has indeed happened, that this drain has proved a radical cure of the original disease: but that has been accidental, and is not in general to be expected. The intention is generally palliative; and if the patient lives, is most likely to require repetition: therefore, if there be any difference between the two methods, with regard either to ease, or safety, there can be no doubt which ought to be preferred.

All wounds of membranous parts in anasarca or dropical habits, are necessarily both painful and hazardous; they are apt to inflame; are very difficultly brought to suppuration; and will often prove gangrenous, in spite of all endeavours to the contrary. But the larger and deeper the wounds are, the more probable are these bad consequences.

sequences. Simple punctures, with the point of a lancet, are much less liable to be attended by them, than any other kind of wound; they generally leave the skin easy, soft, cool, uninflamed, and in a state to admit a repetition of the same operation, if necessary. Incisions create a painful, crude, hazardous sore, requiring constant care. Punctures seldom produce any uneasiness at all; and stand in need of only a superficial pledgit, for dressing.

Now although there is so very material a difference in the symptoms and trouble attending the two methods, yet is there none in their effect: the communication of the cells of the dartos with each other, is so free through every part of it, that punctures made with the fine point of a bleeding lancet, into the most superficial of them, will, as certainly and as freely, drain off all the water, as a large incision, without any of its inconveniences or its hazard. Neither the one nor the other will cure the original disease, unless by mere accident: they are both made, with a design to cure only the local one. The same habit and constitution remaining, the same effect will in general follow; and the same relief be  
again



again necessary. The ease, the freedom from bad symptoms, or from danger, and the state in which the parts are left, render one method practicable at all times, and capable of being repeated as often as may be thought necessary: the fatigue, pain, confinement and hazard, which most frequently attend the other, make one experiment in general, as much as most people chuse to submit to; or indeed have an opportunity of complying with.

## C A S E V.

**A** Man about fifty-five years old, who had lived freely, was afflicted with an anasarcaous tumor of his belly, legs, thighs, scrotum and penis, accompanied with the general symptoms which most frequently attend such complaints, *viz*, prostration of appetite; little, and that high coloured, urine; a hard belly; and a bloated face.

He had taken many medicines by the direction of a physician in the country; and more than one quack-remedy, since he had been in London; but to no purpose: the watry load increased daily, and the swelling of  
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of the penis and scrotum became so troublesome, as to prevent his wearing breeches.

In these circumstances, a person who attended him in the capacities of apothecary and surgeon, proposed to draw off the water by an incision on each side of the scrotum ; to which the patient consented. The incisions were made, and in a few hours the scrotum was empty and flaccid.

At the distance of five days from this operation, his surgeon died, and I was desired to visit him.

I found him in bed, with a painful, foul, undigested sore, on each side of the scrotum ; which, though it had at first been emptied by the incision, was now again considerably loaded with serum, but at the same time, hard and inflamed : the edges of the wounds were livid, the discharge from them was a discoloured gleet ; and the pain was so great, that the man could get no rest : his pulse was frequent, hard and small ; his breathing not perfectly free ; his urine little, and high-coloured ; his thirst very troublesome ; his belly hard and tight : and having taken an opiate every night from the time of the operation, he had not had a stool for three days past.

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I dressed the incisions with a soft digestive ; and covering the whole scrotum with a warm pultice, tied it up in a bag-truss ; directed a glyster to be thrown up immediately, and a purge to be taken the next morning : from which in the following day, he had four or five stools ; and by which his respiration was relieved, and his belly rendered softer.

Next day the inflammatory hardness of the scrotum seemed to be going off, but to be succeeded by an emphysematous kind of tumefaction ; and in four days from that of my first visit to him, the whole bag was in a state of mortification, notwithstanding the constant use of fomentation, cataplasm, &c.

Having already taken a large quantity of medicine of different kinds, it was with much difficulty, that I could prevail on him to hear of any more : but upon making a true representation to him of the state of his case, and of his imminent hazard, he consented to take the bark, with some con-fect. cardiac. and tinct. rad. serpent. every three or four hours.

By putting a tea-spoonful of brandy into each dose, it kept upon his stomach. At  
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the end of three days, the pain and soreness were considerably lessened ; and on the sixth he got a little quiet sleep without any opiate : on the ninth the mortified parts seemed inclined to suppurate, and the gleet was small, in comparison of what it had been : on the twelfth there was an appearance of tolerable good matter from the edges : on the fifteenth a laudable suppuration was established, and the mortified parts were every where loose and falling off. Instead of a small quantity of high-coloured urine, he now made what was nearly equal to his drink, and that very well-conditioned ; and the watry extravasation in his legs and thighs was considerably diminished.

He now began to nauseate the bark, in the form in which he had hitherto taken it ; it was therefore changed for another, which he took at larger intervals : and to assist his urinary discharge, his apothecary gave him an infusion of the cineres genistæ and horse-radish, which answered the purpose very well.

The whole scrotum and dartos cast off in a large slough, and left the tunicæ vaginales of both testicles, as bare and clean,



as if they had been difsected : these were soon covered by an incarnation, which supplied the place of the scrotum tolerably well ; and by persisting in the use of the same remedies, for a few weeks longer, he was restored to perfect health.

## C A S E VI.

**A** Man, not exceeding forty, who had drank freely of spirituous liquors, was thereby brought into the same circumstances, as the patient in the preceding case : that is ; his countenance was yellow and bloated ; his legs, thighs, scrotum and penis, loaded with a watry tumor ; he had little or no appetite ; and made a very small quantity of high-coloured urine.

Internal remedies having been ineffectually tried for some time, he was advised to have an incision made on each side of the scrotum ; by means of which, all the swelling both of it, and of the penis, was immediately removed, and the patient much pleased.

On the fourth day from the operation all discharge of serum ceased, and the wounded part swelled, inflamed, and became very painful. Fomentation, cataplasm,

plasin, and proper digestive dressings were used ; but without any relief from the pain, or any beneficial alteration in the appearance of the fores. On the sixth day from that of the incision, I was desired to meet the gentleman that had the care of him. I found that the hard inflammatory swelling, which a day or two before had occupied the whole scrotum, was now gone off ; and that it was become flabby and livid, especially about the incisions.

I proposed his taking the cortex, but it was not complied with : nor do I know, what the medicines were which he did take ; neither myself nor his attendant surgeon being consulted on that head. Warm spirituous fomentations, with proper pul-tice and dressings were continued, but to no purpose. I saw the patient each morning, for four days ; during which, he got little or no rest, and complained of great pain and burning heat within his belly : the watry extravasation in his thighs and legs increased daily ; the whole scrotum and skin of the penis became black, and mortified, as did also the part of the pubes ; and on the eleventh day, from that on which the incision was made, he died.



## C A S E VII.

A Man, about forty-five years old, by name Corby, who was a patient in St. Bartholomew's Hospital on another account, shewed me a swelling on the left side of his scrotum. It was large, full, tight, and had all the symptoms and appearances of an hydrocele of the tunica vaginalis, *viz.* the fluctuation of the fluid, the freedom of the upper part of the process, and the concealment of the testicle. I thought myself so clear in the true nature of the disease, that without any scruple, I pierced it with a small trochar in the lower and anterior part, and thereby let out about two ounces of limpid water; but could by no means draw off any more, though I pressed a probe up through the cannula, and used every other means proper to obtain it.

I withdrew the cannula, and examined the swelling again; which was but little diminished by what had been done: but though it was not much decreased in size, it was considerably altered in appearance. I could now very plainly distinguish the  
testicle,

testicle, and was convinced, that the whole disease was confined to the cells of the dartos. In short, it was (what I had never seen before) an anasarca of that membrane, on one side only ; having a certain quantity of the water in one cyst or bag, and the rest diffused through the cells in the usual manner : the latter made all the tumefaction, which remained after tapping ; and the former had concealed the testicle.

Being now truly satisfied of the nature of the case, I made an incision, about an inch long, through the scrotum into the loaded dartos ; intending thereby to drain off the water ; and by procuring a suppuration, to cure the disease. Into the incision I put a little dry lint ; and tied the scrotum up in a bag-truss.

To my great astonishment, the next day my dresser told me, that Corby's scrotum was swelled to a great size, and that the incision was already livid. I went to the Hospital, and found it so, I ordered the part to be fomented, and wrapped up in a warm pultice ; and that the man should take the cortex freely, till the physician should see him.



In three days time, the whole scrotum, and skin of the penis was completely mortified ; and a considerable part of the pubes altered and vesicated : his pulse was quick, and small : he complained of a burning heat in his belly and bladder ; his thirst was intense ; and his extremities cold.

For several days I was convinced, that each would be his last ; his fomentation, cataplasm, and dressings were continued ; the doctor ordered him a dram of the bark, as often as his stomach would bear or keep it, in a julep, well impregnated with volatile salt ; and the poor man earnestly begged to be allowed a pint of porter a day ; which he had. At last, in about three weeks time, the whole scrotum, the integuments of the penis, and some part of the pubes cast off, leaving the corpora cavernosa, and the tunica vaginalis, as clean as if they had been dissected. The man got well.

More of the same kind of cases might be produced, in which the trouble and hazard attending large incisions of the scrotum, in dropfical cases, have been great ; but the similarity of them renders it unnecessary. I shall therefore only add, that  
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from the simple puncture, I have seldom met with either ; and that I have as seldom known them fail to answer the purpose for which they were intended, *viz.* a temporary discharge of serum, from the cellular membrane.

## S E C T. V.

**I**F we consider the preceding complaint as merely symptomatic, and do not rank it among the different kinds of hydrocele, there will then remain only three, *viz.*

1. That which consists of a collection of water, in the cells of the tunica communis, or cellular membrane, enveloping and connecting the spermatic vessels.

2. That which is formed by the extravasation of a fluid, in the same coat as the former ; but which, instead of being diffused through the general cellular structure of it, is confined to one cavity or cyst, in which all the water constituting this species of disease is contained ; the rest of the membrane being in its natural state.



3. That which is produced by the accumulation of a quantity of water, in the cavity of the tunica vaginalis testis.

These three are distinct, local, and truly within the province of surgery. They may accidentally be combined or connected with other disorders, but not necessarily ; and are frequently found in persons, whose general habit is good, and who are perfectly free from all other complaints.

#### THE HYDROCELE OF THE CELLS OF THE TUNICA COMMUNIS.

**I**N the anatomical account of the parts, which make the seats of the different kinds of hydrocele, it has been observed, that the spermatic vessels, from their origin quite down to their insertion into the testicle, are enveloped in, and connected together by, a membrane, called formerly tunica vaginalis vaforum spermaticorum, but now (more properly) tunica communis. That this membrane so enveloping the spermatic vessels, has no one particular cavity, (as its old name would seem to imply ; ) but is merely cellular, as either by inflation of air, or the extravasation of a fluid, will al-

ways

ways prove. That while it is within the cavity of the belly, its cells are lax and large; and when it has passed out from thence, and has formed a part of the spermatic process, by enveloping its vessels, its cells are rather smaller, and the membrane composing them firmer. That it is included within that thin expansion of muscular fibres, called the cremaster. And that a great number of lymphatics, passing from the testicle to the receptaculum chyli, are always to be found in it.

An attentive consideration of these circumstances in the structure of this part, will shew us, why either obstruction, or breach in the lymphatic vessels; considerable pressure, by means of diseased indurations within the abdomen; or a morbid state of the parts, which should receive the lymph from the vessels of the spermatic chord; may induce the disease in question; and also, when it is produced, that its appearance, and the nature of the extravasation, must make the term *cellular* a very proper one, as expressive of its true state\*.

E 3

When

\* “ J’ai souvent vû des tumeurs aqueuse, grosse comme  
 “ des grains de raizen placées d’espace en espace le long  
 “ du



When the disease is simple, it is perfectly local; that is, it is confined entirely to the membrane forming the tunica communis; and does not at all affect, either the dartos, the tunica vaginalis testis, or any other part.

It is a complaint, which does not give a great deal of trouble, unless it arrives to a considerable size; and being by no means so frequent, as either of the other two kinds of hydrocele, it is in general but little known or attended to. With some, it passes for a varix of the spermatic chord; with others, for the descent of a portion of omentum; which having contracted an adhesion cannot be returned. Thus, its true nature not being in general rightly understood; and, it giving but little trouble or uneasiness, while it is within moderate bounds; and neither hindering any necessary

“ du cordon spermatique accompagner une véritable hydrocele placée sur le corps de testicule.” Le Dran.

The first part of this paragraph is a just and true description of the hydrocele of the cells of the tunica communis, when not much distended: but if by “une véritable hydrocele,” Mr. Le Dran means that of the tunica vaginalis, his description of it, as “Une tumeur aqueuse placée sur le corps du testicule,” is very inexpressive, inadequate, and likely to convey an erroneous idea.

sary action or faculty; they who have it, are most frequently advised to be contented with a suspensary bandage, and find very little inconvenience from it.

Sometimes it arises to so large a size, and gets into such a state, as to become an object of surgery, and to require our very serious attention.

In general, while it is of moderate size, the state of it is as follows. The scrotal bag is free from all appearance of disease; except that when the skin is not corrugated, it seems rather fuller, and hangs rather lower on that side, than on the other; and if suspended lightly in the palm of the hand, feels heavier: the testicle with its epididymis, is to be felt perfectly distinct below this fulness; neither enlarged, nor in any manner altered, from its natural state: the spermatic process is considerably larger than it ought to be; and feels like a varix, or like an omental hernia; according to the different size of the tumor: it has a pyramidal kind of form, broader at the bottom than at the top: by gentle and continued pressure, it seems gradually to recede or go up; but drops down again immediately, upon removing the pressure:



and that as freely in a supine, as in an erect posture : it is attended with a very small degree of pain or uneasiness ; which uneasiness is not felt in the scrotum, where the tumefaction is, but in the loins.

If the extravasation be confined to what is called the spermatic process, the opening in the tendon of the abdominal muscle is not at all dilated ; and the process passing thro' it, may be very distinctly felt : but if the cellular membrane which invests the spermatic vessels within the abdomen be affected, the tendinous aperture is enlarged ; and the increased size of the distended membrane passing thro' it, produces to the touch, a sensation, not very unlike that of an omental rupture.

While it is small it is hardly an object of surgery ; the pain or inconvenience which it produces being so little, that few people would chuse to submit to an operation to get rid of it ; and it is very seldom radically curable without one : But when it is large, or affects the membrane within the cavity, as well as without, it becomes an apparent deformity ; is very inconvenient both from its size and weight ; and the only method of cure, which it admits, is  
far

far from being void of hazard ; as must appear to every one who will consider, or who is at all acquainted either with the nature of lymphatic extravasation, or absorption ; or, with the frequent consequences of wounds inflicted on parts merely membranous.

### C A S E VIII.

**A** Man about fifty-five, desired me to look at a rupture, under which he said that he had laboured for several years. For the greatest part of that time he had worn a steel truss, which had given him little or no uneasiness, but had never kept his rupture up. During all this time he had never had any symptoms of obstruction in the intestinal canal ; nor had the tumor ever increased in size, or altered its appearance, until within the last three or four months ; when he had been persuaded to change his truss, for a bandage without iron ; and to make use of an external application, which was said to be infallible.

What the application was, I know not ; but its effect was an excoriation of the groin and parts about ; the bandage was  
made



made of dimity ; had a large hard bolster, with three or four buckles ; and was buckled on, very tight.

He said, that the pain it had caused, had been great ; but that he had chearfully submitted to it ; having been assured, that the medicines assisted by the pressure would soon shrink up a piece of caul, which was in the scrotum ; and thereby free him from all possibility of a return of his disease ; and that after that was done, he might leave off all kind of bandage, and do as he pleased.

He had now made the experiment, till the pain was so great, and the parts so swelled, that he could endure it no longer. The scrotum was much inflamed, and swelled ; the groin excoriated ; the testicle enlarged, but not hard ; the spermatic process quite up to the belly, full, tight, and so exquisitely painful, that he could not bear the most gentle handling ; he had no obstruction on his going to stool ; nor any symptom of the confinement of any part of the intestinal canal. The principal information which I could get, was from his own account ; for he could not bear the slightest touch. From this

it appeared to me, that whatever might be the true state of the case, it was very clear, that the first thing to be done was to obtain ease. I therefore put him to bed; bled him freely, ordered him to have a glyster thrown up immediately; and to take two spoonfuls of a purging mixture every two or three hours, until he should have a free discharge per anum; and then to take a grain of extract. thebaic. I wrapped up the scrotum, and covered the groin and pubes with a warm soft pul-tice, and put on a bag truss.

He passed the day in a very uneasy restless state; and in the evening, finding his pulse not at all lower, nor his pain less, (his purging mixture having done its duty) I took away fourteen ounces more of blood, and ordered his opiate to be taken again, and repeated at the distance of every six hours. Forty-eight hours passed over, during which time he took seven grains of opium, before he could get sleep or ease; and when he obtained the former, it did not last more than three or four hours, (an effect I have several times seen, in the exhibition of large and frequently-repeated



peated doses of opium, given either to appease pain, or to quiet a phrenzy.)

When he awoke, he was easier, and seemed to be much refreshed ; his pulse was softer ; his perspiration free ; and the parts less inflamed, and less painful ; his pultice was renewed, after fomentation : and he was directed to take a draught of the common emulsion every six hours, with some manna and nitre in it ; by which means he had, in the course of the next day, two plentiful discharges by stool.

By these means, within the space of six or seven days, all his inflammatory symptoms were removed ; and the parts reduced to nearly the same state, in which they were when he put on his dimity bandage : that is, the testicle was of its natural size, but the spermatic process large and full, tho' soft, and indolent, and feeling very like to a small omental rupture.

For greater certainty, I kept him in bed a day or two more ; and confined him to the same low regimen, with an open body.

The spermatic process continued in the same state. I attempted to reduce the apparent rupture, but without success ; tho' there was no reason to think that there

was

was the least stricture made on it by the tendon of the abdominal muscle. I could indeed make a small part of it recede, but even that did not pass the opening at all like a piece of omentum; it did not give any of that sensation to my fingers, nor produce that kind of noise, which the return of a rupture into the abdomen generally does; and the moment I removed my fingers, it fell down again, altho' the patient was in a supine posture. In short, I made attempts for reduction so long, and so often, that I was perfectly satisfied that the prolapsed part was not reducible; (at least by me.)

It now gave him no pain, nor uneasiness of any kind; but he had suffered so much from the pressure of his bandage, and was so satisfied (from the unsuccessful attempts which I had made,) that his rupture was not capable of being reduced, that he contented himself with a common suspensory bag, and found not the least alteration in it, for the space of three years. At the end of this time he was attacked with a peripneumony, and died.

I obtained leave to examine his body, and found, that what I had taken for a  
portion



portion of omentum, was a collection of water in the cells of the tunica communis of the spermatic vessels, on the outside of the cavity of the abdomen ; that nothing else had passed thro' the tendon of the oblique muscle ; and that the testicle, and tunica vaginalis were perfectly unaffected.

Notwithstanding the account, which this patient had given of himself, and of his having frequently reduced his rupture, I am satisfied that he never had one ; and that his disease had, from the first, been what it at last appeared to be. There was no sign of an hernial sac ; and tho' the return of such sac back again into the belly, after it has been in the groin or scrotum, is a thing much talked of by late writers, I do not believe that it ever happened.

This steel truss did not press hard enough to produce any mischief, and was thought not to have kept his rupture up ; and the symptoms, under which I found him labouring, were occasioned merely by the dimity bandage, substituted in the place of his truss ; which having large hard bolsters, and being buckled on very tight, pressed violently on the spermatic vessels and loaded membrane.

C A S E IX.

A Healthy middle-aged man applied to me one day, while I was dressing the Hospital, and shewed me a considerable swelling in his scrotum. I examined it, and told him I believed it to consist of water. He replied, he knew it; for that Mr. Baker, then one of the surgeons of the Westminster Infirmary, had a few days before drawn some from it by puncture with a lancet. Upon hearing this, I examined it again, imagining that I might possibly find it to be blood: (a circumstance which now and then happens, after tapping a common hydrocele :) but still it appeared to me to have all the marks of a tumor from water, and to be principally in the spermatic chord. The dartos was indeed a little thickened by the insinuation of a small quantity of a fluid into some of its cells, but the testicle was much too plainly distinguishable, for the case to be taken for a hydrocele of the tunica vaginalis; nor was the upper part of the process, in that free state in which it is most frequently found, in that disease. I  
took



took him into the Hospital, and ordered him to keep his bed, till I saw him the next day; at which time I passed a small trocar into the anterior part of the tumor a little higher than usual; at first a limpid serum flowed freely; but that soon stopped, and I was necessitated to pass a probe frequently up the cannula, to get away the remainder; neither could I, either by that means, or by pressure, reduce the scrotum to a proper size, or remove the fulness of the process above. I ordered the part to be fomented night and morning, and the whole scrotum and groin to be covered with a soft pultice; and that the man should take a solution of manna and glau-ber's salt the next morning. The applications were continued, and the purge repeated every second, or third day, for a fortnight; at the end of which time, the swelling was as large as when I first saw it.

During this interval of time, I frequently examined the parts; and always found the testicle much more free, and independent, than I had ever felt it in a hydrocele of the tunica vaginalis. It appeared to me, from the kind of fluid which had already  
been

been twice let out, and from the present appearance of the part, that no cure would be obtained without laying the whole open ; but as I was by no means certain, what was the precise nature of the disease, or in what state the parts might be found, I informed the man that it might possibly become necessary to remove that testicle. To this he consented ; and I made an incision, thro' the skin, from the groin, down as low as the testicle ; intending, if I had found the process diseased, to have castrated.

The incision was followed by a large discharge of water, not only from the lower part, where there seemed to have been a considerable collection in one cavity ; but from the surface of the whole cellular membrane inclosing the spermatic vessels. Finding this membrane no other way diseased than by the watery distention of its cells, I went no farther with my operation, but filled the incision lightly, with soft lint. For three or four days the discharge of serum was large ; but that ceasing, a plentiful suppuration succeeded ; which was followed by a perfect subsidence of the whole tumor ; and in due time the wound healed, and the man obtained a cure.



## C A S E X.

**A** Gentleman about thirty-five years of age, came out of the North, to London, for the assistance of Mr. William Sharpe, in the case of a large tumor of the scrotum; which, he said, had been coming five or six years.

The account which he gave of it was, that at first it was small, easily (as he thought) put up, but came down again immediately; which he attributed to his not having been accommodated with a proper bandage; that at the end of about nine months, or rather more, he found that he could not reduce it at all, whatever pains he took, or whatever posture he put himself into; and that from this time, its increase had been daily more apparent. The case was singular; and Mr. Sharpe desired me to see it with him.

The scrotum was of a most prodigious size; it hung more than half-way down to the patient's knee; it was very ill supported, by an awkward bag of his own making; and, toward the lower part, was  
much

much ulcerated; by neglected excoriations. Different parts of the tumor felt very differently; in some places, it was hard; in some, soft; and in others, a thin fluid was palpably discoverable. The spermatic process was large and full, quite up to the groin; the aperture in the abdominal muscle was considerably dilated by it; and when the patient coughed, the whole tumor was manifestly distended: his stools were regular, his appetite good, his urine proper in quality, but very deficient in quantity, his sole complaints were, a pain in his back (proceeding as we supposed from the weight of the scrotum); and a languor, and dispiritedness, which he had not been accustomed to, and could not account for.

The feel of some part of the tumor, was like that of an intestinal hernia, in which there is no stricture, and the gut does its office in scroto; but other parts of it were so unlike to this, and the upper part of it toward the groin was so large, and so hard, that we remained in great doubt concerning the true nature of the contents.

When we had sufficiently examined the tumor in an erect posture, we put the pa-



tient into a supine one, which produced a considerable alteration in the appearances. The tumor became manifestly less, and softer; and seemed, by retiring, to occasion a large swelling on that side of the belly, just above the os ilion, tending backward toward the region of the kidney. Upon continued pressure, the contents of the scrotum seemed to recede still more; and still as they receded, the swelling on the side of the belly increased. When we had got up to a certain point, we could get up no more; but during our endeavours, to return as much as we could, we clearly discovered that the tumor in the scrotum, and that within the belly, were produced by the same body; that there was a palpable and free fluctuation, from the one to the other; and that the harder parts were mere indurations, and thickenings of the integuments and common membrane.

The burden was so great, that the patient was desirous of being eased, at any rate. We communicated to him our opinions, our suspicions, fears, and uncertainty; and told him what hazard might possibly be incurred, by acting according  
to

to the former, if we should be mistaken ; but he being determined to endeavour to obtain relief, at all events, and we being prepared, as well as we could for whatever might happen, made a small incision into the lower and anterior part of the tumid scrotum.

As soon as we had divided the skin, a quantity of clear limpid water burst forth, of which we caught above a quart ; and then the opening was stopped, by something which thrust itself out, and looked like a piece of cellular membrane loaded with water. We cut a part of it off, and gently pushed back the rest with a probe ; while, by moderate and continued pressure, we drained off eleven Winchester pints of water.

When we could get no more away, we would have enlarged the opening ; but our patient found himself so lightened, and so easy, that he would not permit it.

The scrotum, it is true, was considerably lessened ; but in no proportion to the quantity of water which had been drawn off : the whole spermatic process, from the testicle quite up to the belly, was still large and full ; and the abdominal opening



still dilated by a large body passing thro' it ; but, as the swelling in the belly could not now be felt in any posture, and as the scrotum was reduced to such a size, as to be easily supportable by a bag truss, he determined to wait the effect of what had already been done. In little more than a month we saw him again, the tumor in the side of the belly was as apparent, the fluctuation as palpable, and the burden as great as when we first saw him. His health was still good in general ; but his face appeared to me to be more pale and wan, and he complained still more of thirst and languor.

As we were now sure of the nature of the contents, we divided the whole scrotum from the bottom upward. The lower part was formed into a cyst, or bag, made by the pressure of the water, which was discharged upon the first introduction of the knife ; but all the rest of the tumor was formed, by the diffusion of serum thro' all the structure of the tunica communis, the cells of which were all much enlarged with it, quite up to the groin ; the testicle being very distinct, and free from disease. The serum oozed freely from all parts of this membrane

membrane by gentle pressure ; and as it seemed to subside considerably thereby, we meddled no farther, but contented ourselves with filling the incision lightly with dry lint, and suspending the scrotum in a bag truss.

During the first two or three days, the discharge of water was constant and plentiful ; and the sore was (as might be expected) crude, and undigested ; but without any of that inflammatory hardness and swelling, which wounds, made in such parts, in healthy sanguine people, generally have ; on the contrary, the lips were flaccid, and soft ; it is true, he was perfectly free from fever or pain ; and except the circumstances just mentioned of thirst and languor, he had no apparent disorder ; but they were great and troublesome. The discharge of water continued large, and his wound neither digested nor inflamed ; nor did it wear any the least appearance of gangrene, or mortification ; his languor and anxiety increased daily ; and on the 14th day from that of the operation, he died ; the sore still wearing the same face.

Upon opening his body, we found all the cellular membrane which invested the



spermatic vessels within the abdomen, loaded with water, and distended in a very irregular manner, from the origin of the said vessels quite down to the opening of the oblique muscle; at this place it was contracted into a round, or rather a flat-tish body, of less size, but still so large, as to dilate the opening in the tendon considerably. Below this it was again expanded, and distended with water, thro' all its cells; but the testicle, and its tunica vaginalis were in a sound state, and perfectly unaffected by the disease.

Was it the large discharge of serum, or the free division of membranous parts, which occasioned this gentleman's death? For my own part, I am inclined to attribute it to the former; for though an incision, made in parts of such structure, and so diseased, does sometimes prove fatal, yet the parts themselves in such case, generally shew, by a gangrenous or mortified appearance, what share such operation has in the patient's destruction.

In this case, there was indeed no digestion, nor any of that inflammation, which always precedes suppuration; nor, on the other hand, was there any appearance like  
gangrene

gangrene or sphacelus; but his manner of dying was very much like that of those who are destroyed by large hæmorrhages.

## S E C T. VI.

### THE ENCYSTED HYDROCELE OF THE TUNICA COMMUNIS.

**T**HIS species of Hydrocele has its seat in the same part as the preceding, *viz.* the tunica communis, or cellular membrane, which invests the spermatic vessels: with this difference, that in the former the water is diffused in general thro' all the cells of the membrane; whereas in this, it is contained in one cavity only. If any of the three kinds of hydrocele deserves the name of encysted, it is this. The water which constitutes it, being all contained in a bag, formed in the same manner, as all the coats, of all encysted tumors are, *viz.* by mere pressure, and condensation of the common membrane.

It is a complaint by no means infrequent, especially in children, It was very  
well



well known to many of the Ancients, and has been very accurately described by some of them\* ; but later writers have often mistaken it for, and represented it as, a species of wind-rupture, or pneumatocoele ; a disease existing in their imaginations only. It most frequently possesses the middle part of the process, between the testicle and groin, and is generally of an oblong

\* By Albucasis, by Celsus, Paulus Ægineta, and others. The last has particularly distinguished this kind of hydrocele, from that of the tunica vaginalis, by a very just description of both : “ Si humor in membrana supernata  
“ coierit, tumor alterius testiculi imaginem exhibet.  
“ Quibus in Erythroide tunica humor comprehensus est,  
“ tumor rotundus paululum, et ovi modo longiusculus ;  
“ his testiculus in conspectum non venit, ut qui undi-  
“ quaque sit implicitus.”

The former of these descriptions our countryman Peter Lowe, has most probably copied, when he says, “ It is  
“ sometimes inclosed in a membrane, and appeareth  
“ like a third testicle.”

Heister speaks of this species of hydrocele as very rare, only quotes the authority of others to prove its existence, and seems in some measure to confound it with a collection of fluid in a congenial hernial sac.

Page 842, he says, “ Quandoque tamen etiam, ut  
“ nonnulli autores referunt, in peritonæi processu, supra  
“ testiculum, liquor præter naturam colligitur : imo  
“ etiam in productione peritonæi, ab intestinorum her-  
“ nia orta, copiosum liquorem in cadavere, sectione ali-  
“ quando

oblong figure; whence it has by some people been compared to an egg, by others to a fish's bladder. Whether it be large or small, it is generally pretty tense, and consequently the fluctuation of the water within it, not always immediately, or easily perceptible; for which reason it has been supposed to contain air only. It gives no pain, nor (unless it be very large indeed) does it hinder any necessary action. It is perfectly circumscribed; and has no communication, either with the cavity of the belly above, or that of the vaginal coat of the testicle below it. The testis and its

“quando deprehendi.” And in a note on this passage, he adds, “Weidemannus, nec non Boerhavius, itemque Garengotus et Dranius memorant istiusmodi hydroceles casus quandoque observari; ubi digito contingi testiculus queat; atque tunc supra testiculum in peritonæi processu tumorem et humorem consistere. In enterocele autem contrarium quandoque usu venire, propterea quod intestina interdum, ut supra monui, usque in tunicam vaginalem, per septum illud naturale, quod testiculum a parte superiori processus peritonæi distinguit penetraverunt.”

“Sed rari admodum sint necesse est, ad quos modo laudati autores provocant casus. Ego sane quanquam plurimos homines enterocele, non minus quam hydrocele laborantes sanaverim, nunquam tamen adhuc ita rem inveni, &c.”



its epididymis, are perfectly and distinctly to be felt below the tumor, and are absolutely independent of it. The upper part of the spermatic process in the groin is most frequently very distinguishable. The swelling does not retain the impression of the fingers; and when lightly struck upon, sounds as if it contained wind only. It undergoes no alteration from change of the patient's posture; nor is affected by his coughing, sneezing, &c. and has no effect on the discharge per anum.

These marks (while the disease is simple and uncombined with any other) are sufficient to distinguish it by, from all others which may affect the same part; but it sometimes happens, that the present complaint is found connected either with a true hernia, or with a hydrocele of the tunica vaginalis; by which the case is rendered complex, and less easy to be understood.

In this, as in every other case, where from a complication of symptoms and appearances, a combination of diseases may be suspected, there is but one method of investigating the truth; which is, to consider carefully what disorders the part ag-  
grieved

grieved is naturally liable to ; what the distinct symptoms and appearances of each of those are ; and what are the effects of the present complaint. The two diseases with which this kind of hydrocele is most likely to be combined, are, as I said before, an hydrocele of the tunica vaginalis testis, and a true hernia ; the parts within the groin, the spermatic process, and the scrotum being the seat of all three.

One mark, or characteristic of an hydrocele of the tunica vaginalis testis, is, that it possesses and distends the inferior part of the scrotum ; and that the testicle being nearly, (tho' not absolutely) surrounded by the water, it very seldom happens, that the former can be clearly and plainly distinguished by the fingers of an examiner ; whereas in the encysted collection, in the membranes of the chord, the tumor is always above the testicle, which is obvious and plain to be felt below it.

Another circumstance worth attending to, is, that altho' the fluid in a hydrocele of the vaginal coat does so nearly surround the testis, as to render it often not very easy to be distinguished, yet the different parts of the tumor have always a very different



ferent feel : for instance, in all those points where the vaginal tunic is loose, and unconnected with the tunica albuginea, the tumor is soft and compressible, and gives a clear idea of the contained fluid ; but when these two coats are continuous, or make one and the same membrane, and have no cavity between them (which is the case on the middle and posterior part) there will always be found a hardness and firmness, very unlike to what is to be found in all those places, where the distance \* between the two tunics leaves room for the collection of a fluid : now the hydrocele of the chord being formed in the mere cellular membrane of it, is the same to the touch in all the parts of the tumor, and feels like a distended bladder thro' every point of it.

The free state of the upper part of the spermatic process, while the tumor is forming below ; the gradual accumulation of the fluid, and consequently the gradual growth of the swelling ; the indolent and unaltering state of it ; its being incapable of reduction,

\* “ Tunica Erythroides naturæ nervosæ, in gibba quidem et anteriore e testiculo libera est, in concava et posteriori ipsi adherescit ex peritonæo originem trahens.” Paulus Ægineta.

reduction, or return into the belly from the first; its being always unaffected by the patient's coughing, or sneezing; and the uninterrupted freedom of the fæcal discharge per anum, will always distinguish it from an intestinal hernia; and he who mistakes it for an omental one, must be very ignorant, or very heedless.

Now, altho' there may not always be such external marks as may, to the eye, explain the combination of these diseases with each other; yet the particular seat, and symptom of each being known, and the sensations which they produce to the fingers of an intelligent examiner being well understood, when such mixed characteristics are found in the same subject, we may reasonably conclude the case to be complex, and act accordingly.

I have indeed seen an encysted hydrocele, situated so high toward the groin, as to render the perception of the spermatic vessels very obscure, or even impracticable; but then, the state and appearance of the testicle, and the absence of every symptom proceeding from confinement of the intestinal canal, were sufficient marks of the true nature of the complaint.



Infants are much more subject to this disease, than adults; tho' it often affects the latter.

In young children, it frequently dissipates in a short time, especially if assisted by warm fomentation, and an open belly.

If it does not disperse, that is, if it be not absorbed, the point of a lancet will give discharge to the water; and in young children, will most frequently produce a cure: but in adults, the cyst formed by the pressure of the fluid does sometimes become so thick, as to require division thro' its whole length; which operation may in general be performed with great ease, and perfect safety: I say in general, because it is most frequently so; tho' I have seen, even this, slight as it may seem, prove troublesome, hazardous, and fatal. Of such consequence are wounds in membranous parts in some particular habits.

#### C A S E   X I.

**A** Lad about sixteen yearsold, was taken into St. Bartholomew's Hospital, with a complaint which he had been told was a rupture.

The

The tumor was large ; of an oblong figure ; began just below the exit of the spermatic vessels, from the belly ; and extended to the bottom of the scrotum : but in the middle of it, was a depression, or stricture, which seemed to divide it nearly into two equal parts. The upper part was so high, that I could not feel the spermatic process, at all satisfactorily ; and altho' there was palpably a fluid in the whole of the swelling, yet the upper and lower parts of it did not seem to communicate with each other ; at least the fluctuation thro' them was not discernible. As he had never had any symptom of a true hernia ; and as the account he gave, of the gradual formation of the tumor, joined to the fluctuation, &c. convinced me that it was principally, if not totally water, I pierced the lower part carefully, and drew off nearly half a pint of a yellowish serum ; by which means the scrotum became immediately empty and rugous, and the testicle clearly distinguishable : but the upper part of the swelling remained as large, and as tense as before ; nor could I by any means obtain a drop of fluid more from below.



The next day I ordered him a brisk purge, which operated well ; and two or three days after, being satisfied that the intestinal canal could have no share in the complaint, I thrust a lancet, into the anterior part of the upper tumor ; by which means a quantity of limpid serum was discharged, and the whole swelling immediately disappeared ; leaving the spermatic vessels free, and easily distinguishable.

In a few days he left the Hospital ; and at the end of a year, or a little more, he came to me again, with the lower part of the scrotum full ; but without any appearance of the tumor above. In short, his former state consisted of a complication of the encysted hydrocele of the spermatic chord, with that of the tunica vaginalis testis : the former was cured by the first puncture, the latter was now as full as ever.

Considering the lad's age, and temperament, I advised him to submit to the operation for the radical cure by incision ; which operation was performed, and he got well in about seven weeks ; nor has had any return of either complaint since.

## C A S E XII.

A Man about thirty-five, who had for some years been troubled with a hydrocele of the tunica vaginalis, which had often been emptied by puncture, came to me for advice.

The swelling in the scrotum, he said, was now about one third of the size it used to be of, when he had been accustomed to have it tapped: it was not tense; was of an irregular figure; and plainly contained a fluid. But it was not on account of this tumor that he applied to me,

Within two months past he had discovered another small swelling; higher up towards his groin; perfectly distinct from the lower one: it was about the size of the largest French walnut; of an oblong figure; absolutely indolent; very tense; and left the spermatic process, at its exit from the abdomen, perfectly free.

From the appearance which these tumors made, and from the patient's account, I made no doubt of the nature of the case, viz. that the upper one was made by a



collection of water, in a cyst, formed in the cellular membrane which makes the tunica communis of the spermatic vessels; and that the lower one was a true hydrocele, of the tunica vaginalis testis.

Upon this presumption, I pierced the upper one with a lancet; and let out a small wine-glass full of clear limpid serum. The tumor immediately subsided, and left the whole spermatic process free; but the lower swelling was not at all affected by what had been done above. The puncture was well in a day or two; and the hydrocele of the vaginal coat, not being full enough to be at all troublesome, he would not permit me to meddle with that. At the end of about nine months he sent for me; his hydrocele was full and large, but he had not the smallest appearance of the tumor in the process. The water was let out by puncture, as usual; as it has been several times since; but he has never suffered any return of the collection in the process.

## C A S E XIII.

**A** Lad about fourteen years old, was brought into St. Bartholomew's Hospital, for a rupture ; which a surgeon (who had seen him at home) had told his friends, was not in a situation to admit delay : and it being my week for accidents, I was sent for immediately. I found a large tumor, full, and tight, possessing the whole spermatic process and scrotum, from the groin quite down to the testicle ; which was independent of it, and perfectly distinguishable. As he lay on his back, it was perfectly indolent ; but in an erect posture, or in the action of stooping, he complained of pain : it was not tender to the touch, unless pressed hard ; and it was nearly of equal size from the top to the bottom ; it bore so hard against the opening in the abdominal muscle, that I could, by no means, feel the spermatic process ; he said, that it had appeared within a week ; and, that he had had no stool for five days past.

Some of these were circumstances of importance, and might be occasioned by a stricture on the intestinal canal : but, on



the other hand, his pulse was soft, calm, and quiet; and his skin cool: he had neither tight belly, nausea, hiccough, nor vomiting; nor any other symptom (general or particular) deducible from such cause.

From the mere appearance, and feel of the tumor, I should have supposed it to be caused by water; but the difficulty of distinguishing the spermatic process above, the freedom of the testicle below, and the want of stools, made me hesitate.

But tho' I was in some doubt concerning the precise nature of the case, yet I was very clear, there was no immediate necessity for an operation. Therefore having found, that I could not return any part of the contents of the tumor into the belly, I took away sixteen ounces of blood from his arm; ordered a glyster to be thrown up immediately; and two spoonfuls of a purging mixture, to be taken every two hours, until a plentiful discharge per anum should be procured.

He took his mixture only twice, and had six large stools that afternoon; and when I saw him the next morning, he was perfectly well in health, but the tumor exactly the same. I examined it again,  
and

and again, and was still more positive, that it contained a fluid : but whether that fluid was in the tunica communis, or in a hernial sac, I could by no means be clear. However, as there was no possible method of getting rid of it but by an opening, I determined to make one with such caution, as to be prepared for whatever might happen.

I made a small incision, into the anterior, and lower part : when I had divided the skin and cellular membrane, I found a firm hard membrane, which I took for the sac of an hernia : this I divided with the same caution, and gave discharge to a considerable quantity of serum ; upon which the whole swelling immediately subsided, the spermatic process appeared in a natural state, and the opening in the tendon undilated.

The incision was dressed superficially, and healed in a few days.

Within less than half a year he came to me again, with the swelling as large, and under the same apparent circumstances, as before. His habit was so good, and I so well remembered the toughness of the cyst, at the first operation, that I made



no scruple of advising him to have it laid open thro' its whole length. To this he submitted, and obtained a perfect cure.

## C A S E XIV.

**A** Man about forty, servant to one of the governors of St. Bartholomew's Hospital, came thither for advice concerning a rupture ; which, he said, the surgeons in the country had often endeavoured to put up, but had never succeeded.

The groin and all the upper part of the scrotum, was large and full ; but the testicle below very fair, and distinct from the tumor. The account which he gave, was, that he first perceived the beginning of the swelling, in the evening of a day, in which he had ridden a very hard fox chase ; and had been a good deal hurt by a fall over his horse's head. That at first it was small ; and that it had gradually increased ever since. That it had never been up since it first appeared. That he constantly felt a dull kind of uneasiness in it ; and that it was very troublesome to him when on horseback ; which he was frequently obliged

obliged to be, as his business was that of an huntsman. I examined the case carefully, and was satisfied that it was water, and not in the vaginal coat of the testicle. He had for some time worn a truss, which had rendered the part uneasy ; had lived freely with regard to liquor ; had a yellowness in his countenance, which had an unhealthy appearance ; his legs were rather too full ; and he had, for a little while past, been under the direction of a physician in the country.

I did not like his appearance, considering him as the subject of an operation, and therefore advised him to return into the country, and continue to follow his doctor's direction.

At the distance of three or four months, he came to the hospital again. He had now the appearance of very good health. His countenance was fresh ; his appetite keen ; his urine in proper quantity ; and his legs fine. His tumor was larger ; and he said it was become so troublesome, that if something was not done for it, he must quit his service, and go to the parish.

I could have wished, that his former state had been different ; but having apprized



prized him, how much that added to the hazard of any attempt toward curing him, I made an incision the whole length of the tumor, and gave discharge to a considerable quantity of clear water.

The cyst was firm and thick, and formed in the common tela cellulosa of the chord.

For three days the wound discharged a large quantity of serum, but it neither became tumid, nor inflamed ; his pulse became hard, and frequent ; he was thirsty, and restless, and had a languor in his countenance which I did not like. On the fourth day the discharge of water ceased, but the incision still remained cold, lax and flabby ; and was so far from shewing any tendency to suppurate, that, on the contrary, the edges began to be livid.

Bark, and cordial medicines, were prescribed by the physician ; and fomentation, pultice, and animated digestive dressings were applied ; but to no purpose. On the sixth day he complained of a burning heat in his back and kidneys, while his extremities were cold and damp ; on the seventh he became delirious, and that evening died.

All the cellular membrane in the pelvis, and about the loins, and kidneys, was excessively distended with air, and in several places discoloured; and in the cavity of the abdomen was a large quantity of bloody water.

## SECTION VII.

### HYDROCELE OF THE TUNICA VAGINALIS TESTIS.

**T**HE third species of this disease, is that which is confined to the vaginal coat, or bag which loosely envelopes the testicle. In the short anatomical account, already given of the production, structure, and situation of this tunic, it has been observed, that in a natural, healthy state, its cavity always contains a small quantity of a fine fluid, exhaled from capillary arteries, and constantly absorbed by vessels appointed for that purpose.

This fluid, in the natural small quantity, serves to keep the tunica albuginea moist; and to prevent a cohesion between it, and the vaginalis; a consequence, which almost necessarily follows any such diseased  
stat<sup>e</sup>



state of these parts, as prevents the due secretion of it. On the contrary, if the quantity deposited be too large, or if the regular absorption of it, be by any means prevented, it will be gradually accumulated, and by distending the containing bag, will form the disease in question.

The two preceding species of hydrocele, have their seat in the tunica communis of the spermatic vessels; that is, in the cellular membrane which invests them: one by a general diffusion of lymph thro' all its cells; the other by a collection of it, in one particular cyst or bag: that which makes our present subject, has no concern, or connection with that membrane, at all; but is absolutely confined to the tunica vaginalis testis \*.

It

\* Fallopius, altho' he was unacquainted with the real and true origin and nature of this disease; and supposed its manner of production to be very unlike what it really is; has yet given a very just account of the appearance, both of this, and of the former: “ Alia vero est hernia  
 “ aquosa, in qua aqua distillat per vasa et venas, occulto  
 “ modo, ac sensim ad scrotum. Hæc autem est duplex;  
 “ alia in qua continetur aqua in *membrana adnata*, et in  
 “ proprio folliculo; alia in qua continetur in *inguinali*  
 “ *tunica quæ testem vestit*. Cognoscitur aquam esse in  
 “ tunica adnata, quia separatur testis a parte aquosa ma-  
 “ nibus;

It is a disease from which no time of life is exempt; not only adults are subject to it, but young children are frequently afflicted with it; and infants sometimes born with it. What is the immediately producing cause, I will not take upon me to affirm. Ruysch is of opinion, that it proceeds from a varicose state of the spermatic vessels. What real foundation there may be for such conjecture, I cannot say; certain it is, that the spermatic vessels are very frequently found varicose, in persons afflicted with this kind of hydrocele; but whether such state of these parts ought to be regarded, as a cause, or as an effect of the disease, is a matter worth enquiring into.

In Morgagni are some observations on the state of the parts concerned, particularly the inside of the tunica vaginalis, and outside of the albuginea; which if repeated and confirmed, may possibly lead us on to farther information.

In

“*nibus; præterea, ista hernia habebit propriam circum-*  
 “*scriptionem, aliquando rotundam, aliquando ovalem. Si*  
 “*autem fit in vaginali, non possumus amplius arripere*  
 “*et distinguere testem ab hernia; quoniam in eodem loco*  
 “*et aqua, et testis sunt constituti.*” Gad. Fallopius.



In the mean time, from all the circumstances attending the complaint, it is pretty clear, that whatever tends to increase the secretion of the fluid, into the sacculus, beyond the due and necessary quantity; or to prevent its being taken up, and carried off, by the proper absorbent vessels, must contribute to its production : which is so slow, and gradual, and at the same time, so void of pain, that the patient seldom attends to it, until it has arrived to some size. Not but that it sometimes is produced very suddenly ; and in a very short space of time attains considerable magnitude.

The size and figure of the tumor are various in different people, and under different circumstances. In general, at its first beginning it is rather round ; but as it increases, it frequently assumes a pyriform kind of figure, with its larger extremity downward : sometimes it is hard, and almost incompressible ; so much so, that, in some few instances, it has been mistaken for an induration of the testicle : at other times it is so soft, and lax, that both the testicle, and the fluid surrounding it, are easily discoverable. It is perfectly

fectly indolent, in itself; tho' its weight does sometimes produce some small degree of uneasiness in the back. The great characteristic (as it is called) of this disease, and on which almost all writers have agreed to lay the greatest stress, and to rest their proof of the nature of the disorder, I mean the transparency of the tumor, is the most fallible, and uncertain sign belonging to it: It is a circumstance which does not depend upon the quantity, color, or consistence of the fluid constituting the disease, so much as on the uncertain thickness, or thinness of the containing bag, and of the common membranes of the scrotum.

If they are thin, the fluid limpid, and the accumulation made so quick as not to give the tunica vaginalis time to thicken much, the rays of light may sometimes be seen to pass thro' the tumor: but this is accidental, and by no means to be depended upon. Whoever would be acquainted with this disorder, must learn to distinguish it by other, and those more certain, marks; or he will be apt to fall into very disgraceful, as well as pernicious blunders. The color of the fluid is very  
different



different and uncertain : sometimes it is of a pale yellow, or straw-color ; sometimes it is inclined to a greenish cast ; sometimes it is dark, turbid, and bloody ; and sometimes it is perfectly thin and limpid.

In the beginning of the disease, if the water be accumulated slowly, and the tunica vaginalis thin and lax, the testicle may easily be perceived ; but if the said tunic be firm, or the water accumulated in any considerable quantity, the testis cannot be felt at all : and other symptoms, or marks, must be attended to. In most cases, the spermatic vessels may be distinctly felt at their exit from the abdominal muscle, or in the groin ; which will always distinguish this complaint, from an intestinal hernia (the disease which it is most likely to be confounded with). It does indeed now and then happen, that the vaginal coat is distended so high, and is so full, that it is extremely difficult, nay almost impossible, to feel the spermatic process ; and it also sometimes happens, that the same kind of obscurity is occasioned, by the addition of an encysted collection of water in the membrane of the chord ; or by the case being combined with a true enterocoele.

enterocele. These circumstances are not very frequent; but yet do occur often enough, to render it well worth while to mention them: and to signify that when they are met with, recourse must be had to other marks.

The general notion formed of this disease, is, that it consists of a bag, filled with a fluid, in the middle of which the testicle hangs suspended, and by which it is completely surrounded.

This idea is not only erroneous, and contrary to fact; but may be productive of very mischievous consequences in practice. For from such conception, (or rather misconception) of the state and disposition of the parts, it may be inferred, that all points of the tumor are equally fit for such operation as may become necessary for the discharge of the fluid; which is so far from being the case, that in some parts of it, such operation is perfectly safe, easy, and harmless; in other it is hazardous, painful, and may be productive of the most dreadful consequences. Whoever will take the pains to examine the structure and disposition of the two coats of the testicle (the albuginea and vaginalis),  
H will



will find, that in one part they are so inseparably united, (being indeed one and the same membrane,) that it is impossible for any thing to insinuate itself between them; while in every other part they are so absolutely unconnected, that from the great dilatability of the latter, a large quantity of fluid may be accumulated\*.

In a hydrocele which is tolerably full, the place of this union is the posterior, and superior, or rather the posterior, and middle part of the tumor. A puncture or incision made here, cannot only do no service, as it cannot reach the water, and therefore cannot answer the intention for which it ought to be made; but must injure the testicle, or its epididymis, and thereby

\* “*Humor magna ex parte, in tunica Erithroide appellata, testiculum ambiente, in partem anteriorem colligitur; qua potissimum membrana illa a testiculo separatur.*” Paulus Ægineta.

Mr. Ledran, whose character in practical surgery stands deservedly high, seems to be less clear in his idea, and less perspicuous in his account of this disease, than of most others: his account is, “Une vessie aqueuse placée sur l’un des testicules, auquel elle est adhérente; et comme elle devient quelquefois très grosse, elle remplit presque tout le scrotum.” This does not (at least to me) convey an idea that the seat of this disease is within the tunica vaginalis testis.









thereby do great mischief: whereas an opening made in every other part, will not only give discharge to the water, but can do no harm, and is free from all kind of danger.

This natural connection between the two tunics, at the upper and hinder part, is the reason why, in a simple hydrocele, that part of the tumor feels so very unlike to every other. In that, the tunica albuginea, and vaginalis, being immediately continuous, no water can get between them ; and therefore, the fingers of an intelligent examiner must immediately discover the firmness, and hardness, arising from the union of these parts: in all others, the two membranes being unconnected, and affording a void space for the collection of water, the fluctuation of it will always be distinguishable.

This is a circumstance which must for ever discriminate the simple hydrocele, of the tunica vaginalis, from the anasarcaous swelling of the scrotum ; from the encysted hydrocele of the chord ; and from the intestinal hernia. The first is every where equal tumid and soft ; and every where equally receives, and retains, the



impression of the fingers : The second, tho' circumscribed, not very compressible, and affording the sensation of fluctuation, yet does not pit ; and is alike to the touch in all parts of it : and in the third, if the testicle be distinguishable at all, it is found at the inferior part of the whole tumor.

An indurated, or schirrhous testicle has indeed, very frequently, a quantity of fluid lodged in its vaginal coat ; which is a circumstance not to be wondered at ; the diseased state of the gland being sufficient to account for the non-execution of the absorbent faculty ; and consequently, for the collection of the water. But altho' part of this mixed tumor is undoubtedly owing to a fluid, and such fluid as is lodged within the vaginal coat, yet it is a very different disease from the true, simple hydrocele ; and ought not to be confounded with it ; one of these marks of the latter being the natural, soft, healthy state of the testicle ; and the characteristic of the former, being its diseased, and indurated enlargement\*.

This

\* When I say natural, soft, and healthy state of the testicle, I do not mean, that the testicle in a true simple hydrocele,

This is a point, of more consequence, than it may perhaps, upon a cursory view, seem to be. It not only regards the definitions, but the treatment of the diseases; and being rightly understood, and attended to, or not, may be productive of much good or ill.

We are, by most of the writers on this subject, advised in operating for the radical cure of an hydrocele, to regard carefully the state, and condition of the testicle; and, if we find it enlarged, hardened, putrid, fungous, or any other way really diseased, to remove it immediately: which advice, within proper limitations, is certainly good. A testicle in almost any of the just-mentioned circumstances, ought undoubtedly to be removed: but these cautions have nothing to do with the true, simple hydrocele; and can relate only to the diseased, the schirrhous, or the cancerous testicle. When these disorders are

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hydrocele, is never altered from its natural state, when unaffected by any disease: I know the contrary; I know that the testicle in a hydrocele, is very frequently enlarged in size, and relaxed in structure, as well as that its spermatic vessels are often varicous: I use the words in opposition to the diseased indurated state of the schirrhous testis.



the subject of consideration, then such hints and cautions make a very necessary part of it ; but they can have no concern with the present\*.

The

\* “ Namque ubi forte vel putredo, vel schirrhus; vel  
“ alia quædam corruptio vehemens testiculum invasit,  
“ salutaris exscindere.” Heister.

This is also the doctrine of most of the writers (a large number in surgery) who have copied each other both in their ideas of diseases, and in their proposed method of treating them.

Not writing from practice, or from what they have seen, they have related circumstances, under the article of the simple hydrocele, which never occur, and have directed a method of conduct, which, if followed, must mislead the surgeon, and subject the patient to pain, fatigue, and even loss of parts, without any the least necessity. Under the head of radical cure of the simple hydrocele by incision, Heister has mentioned several circumstances as necessary to be attended to for the regulation of the operator's conduct, which circumstances do not occur in that disease : “ Deligari autem vasa  
“ spermatica filo, rescindique testiculus omnino debet  
“ sicuti in cap. de sarcocoele docuimus, quoties vasa fe-  
“ minalia, non insigniter tantum induruerunt, sed mag-  
“ nis quoque cruciatibus hominem ægrum affligunt. De-  
“ spiciendum quoque porro est num testiculus tume-  
“ factus forte materiam aliquam fluidam, sicut quando-  
“ que contingit, intus contineat. Si quid enim fluidi  
“ intus hæreæ tactu percipimus, aut lympham, aut pus  
“ inibi consistere rectissime colligimus. Interim neque  
“ tunc *rescindere* continuo, (ut nonnulli solent) sed in-  
“ cidere potius, atque expurgare testiculum istum con-  
“ veniet,

The truth is, that the majority both of the ancient writers and practitioners, misled by the sound of the term hydrocele, have mistaken a mere accidental effect, for a cause; and have supposed that the fluid contained in the tunica vaginalis testis may not only constitute a disease by the mere distension of it, but may be productive of other diseases, of the testicle itself. They

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have  
“veniet, &c. Sed si forte simul nimis jam tunc indu-  
“ratus, vel corruptus idem inveniatur, predicta ratione  
“ligandus et ressecandus, ne in carcinoma forte abeat.”

That such state of the spermatic vessels and testicle do occur, is beyond all doubt, but not in the simple hydrocele; not in the hydrocele that any rational practitioner can possibly deem fit, for the attempt for the radical cure by incision. Neither is it possible for a man, who understands the disease at all, not to be acquainted with these circumstances before he attempts such operation; and if he is previously acquainted with them, he must be a very extraordinary man indeed to set about relieving them in such a manner. If the state of the testicle and its vessels be such as to require castration (a thing always capable of being known beforehand) let that operation at once be performed, in a proper and expeditious manner, and not by piece-meal, as it is here described. If castration be not requisite, neither can any other part of the operation (with regard to the testicle) be so; for notwithstanding these descriptions of incisions into, and expurgations of, diseased testicles may make a figure in books, they are very unfit to be introduced into practice. They never can do good, they must do unwarrantable, and generally irremediable mischief.



have fancied the water, to have in itself a noxious quality, or disposition; and that the testicle, by merely swimming in it, might become diseased, and unfit for use; whereas in cases wherein a disordered state of the testis accompanies a collection of water in its vaginal coat, the truth is just the reverse of this supposition: the testis is first diseased, and the faculty of equal, regular absorption thereby interrupted; by which means a quantity of fluid is accumulated, and that mixed appearance produced, which is not improperly called *hydro-sarcocele*. But in this case, the extravasation of water is really the consequence of the morbid state of the gland; and (being still mere simple lymph) neither is, nor can be the cause of it.

They who chuse it, may call this a species of hydrocele; and the literal sense of the word will certainly vindicate them; but they will by that means run the risque of confounding together, two things extremely unlike to each other, and which require very different treatment: I mean the true simple hydrocele, in which the testicle is soft, and sound, (only perhaps a little more lax, and larger than ordinary,) and

and the hydro-sarcocoele, in which the testis is not only enlarged, but hardened, and not in a sound, or healthy state: the former of these will permit such treatment with perfect safety, but in the other, may bring the patient into a state both of pain and hazard\*.

It may indeed, and, does sometimes become necessary to let out the water from the vaginal coat of a testicle, in some degree diseased; but this should always be done with caution, and under a guarded prognostic; lest the patient be not only disappointed, by not having that permanent relief, which for want of better information he may be induced to expect; but be also (possibly) subjected to other unexpected inconveniences from the attempt.

Upon the whole, as just definitions, and accurate distinctions of diseases from each other,

\* Some instances of this are related in this tract. Hildanus has given a particular account of a mistake of this kind: "Inciso scroto plurimum affluxit aquæ; hinc  
" primo subsedit scrotum; post paucos tamen dies se-  
" cutus est dolor, vehemens inflammatio et cancrum  
" ulcus, maximeque malignum; quod adeo impetuose  
" adjacentes partes occupavit, ut ipsius malignitas nullo  
" modo arceri possit; sed intra paucos dies maximo cum  
" cruciatu e vita decessit." Fab. Hildanus.



other, are absolutely necessary towards understanding them rightly, it seems to me much more proper to confine the term hydrocele to the mere simple accumulation of a fluid within the coats of the found testicle, and to refer all those which either are combined with, or proceed from diseases of that gland, to another class.

When the disease is a perfect, true, simple hydrocele, the testicle, tho' frequently somewhat enlarged, and perhaps loosened in its vascular texture, is nevertheless (as I have already observed) found, healthy, and capable of executing its proper office; neither is the spermatic chord any way altered from a natural state, except that its vessels are generally somewhat dilated; neither of which circumstances are objections either to the palliative or radical cure of the disease. But in those disorders which in some degree resemble this, the case is different; either the testicle, or spermatic chord, or both, bearing evident marks of a diseased state. In the true, simple hydrocele, the water is accumulated, merely from the non-execution of the office of the absorbent vessels; which, (whatever ultimate cause it may have) leaves

leaves no appearance of real disease on the parts : in all the other collections of fluid in this part, there are such appearances and marks of distemper, as may clearly convince us, that the extravasation is only a consequence of such state.

The two principal complaints liable to be mistaken for an hydrocele, are, that kind of schirrhous testicle in which an extravasation of fluid is made in the tunica vaginalis ; and the venereal induration of the testicle, attended with the same circumstance. One of these is always a disease of the general habit ; the other too often so. One requires, and generally submits to, a proper course of specific remedies ; for the other (notwithstanding all that has been said on the subject) we as yet know of none ; and therefore it is seldom cured, but by total removal. In neither of these, can the mere discharge of the fluid contribute any thing material toward a cure ; and in both of them such attempt, injudiciously made, has often proved both painful and hazardous.

In the true venereal farcocele, or indurated testis, the disease ought always to be eradicated from the habit before any attempt



tempt be made locally: the mere discharge of the water can never remove the obstruction in the gland; but when such obstruction has been, by proper remedies, removed, it is no uncommon thing to have the extravasated fluid again absorbed: or if it be not, and any operation becomes necessary, a soft, easy healthy state of the testicle, is certainly preferable to an indurated diseased one.

These two cases; or, to speak more properly, these two states of the testicle, altho' they agree in this one circumstance of not being essentially relieved by the mere evacuation of the water, do yet differ so widely in almost every other, that it behoves practitioners to be very careful in distinguishing between them. That method of treating the venereal induration, which is most frequently successful, will prove highly prejudicial in the schirrhous hardness. By mercury, in judicious hands, the pocky patient's disease may be removed, and his health restored: but I have hardly ever seen a schirrhus or cancer that was not exasperated, and made worse by it. Or, if that does not happen, yet, a mercurial course in such case, will always occasion

sion

sion a loss of time, which is not always retrievable. In short, he who treats a schirrhous testicle as he ought to do a venereal one, will not cure the disease, but waste his patient's time, and hurt his general health : and he who treats a venereal one as he most frequently ought to do a schirrhous, will without any necessity submit his patient to a painful operation, and thereby deprive him of a part very essential to him as a man.

C A S E XV.

**A** Gentleman, about thirty years old, shewed me his testicle, which was both enlarged, and hardened, and had very palpably a quantity of fluid in the vaginal coat. He had been told, that it was a water rupture, and that it might be immediately cured by means of a small incision.

The whole testicle and epididymis was (as I have already said) large, and hard ; and so was the vas deferens, and part of the spermatic process ; but there was no kind of inequality on the surface ; neither did it give the patient any pain, except  
what



what proceeded from its mere weight. He had some brown spots on his breast ; a hardness below the frænum penis ; a raggedness and induration of the edges of the sinus of the left tonsil ; a pale plumbean countenance ; and complained much of frequent pains in his knees, and elbows.

I made no scruple to inform him, that he appeared to me to be poxed ; and that I did verily believe, that the disorder in his testicle arose from the same cause. I took pains to dissuade him from submitting to any attempt toward curing his local complaint in the testis, until he should have got rid of the disease, which had infected his whole habit, by assuring him, that if what had been proposed to him was intended merely to let out the water, it could not even contribute to his being made well ; and that if more than that was designed, he might probably experience more harm than good, from the attempt. Not satisfied with my opinion he went to Mr. Sainthill, who gave him the same kind of advice.

In a little time he applied to a gentleman, well known for promising impossibilities ; who told him, that this was a  
disease

disease with which the faculty were perfectly unacquainted; and if he would give him ten guineas, and take a lodging near him, he would undertake to cure him in a week.

He made an incision of about half an inch in length, in the very inferior part of the tumor, and let out a small quantity of bloody water; and then applied a pledgit of lint, and a piece of sticking plaster. The patient passed the night in a good deal of pain, and in the morning found his testicle much swelled, and very uneasy. He sent for his operator, who said, that this was of no consequence, and that if he would keep quiet that day, he would be very well the next. On the third day his testicle was so large, so inflamed, and so painful, that he became exceedingly alarmed, and sent for me.

I found the scrotum highly inflamed; the testicle and spermatic process, large and hard; his pain exceedingly great; his pulse hard, full, and frequent; and his skin hot and dry. I bled him freely, and ordered him a glyster, and a lenient purge, and wrapped the testicle up in a soft pultice. Next day, both the patient  
and



and the parts were in the same state. I bled him again; and his glyster and purge having thoroughly emptied him, I gave him two grains extract. thebaic. and directed that he should take one grain every six hours, until some ease of rest was procured. Two days were spent before any remission of symptoms was obtained: and it was near a fortnight, before the constant use and application of fomentation, cataplasm, &c. together with a general antiphlogistic regimen, and confinement to bed the whole time, had reduced the testicle to such state as to bear examination. When it became capable of this, it was found large, and hard, but without any water in the tunica vaginalis. His general habit being recruited, by a proper regimen, country air, and the bark; he was then put into a mercurial course, by inunction; under which, as all his other symptoms gradually disappeared, so likewise did his induration of the testicle.

C A S E XVI.

**A** Poor labouring man in Essex, got a venereal hernia humoralis. As his daily work would not permit him to take proper care of himself, it was a considerable while before he had got rid of his inflammatory symptoms ; and when he had so done, a part of the testicle and the whole epididymis were left hard, and rather too large. In getting over a high stile he misfed his footstep, and struck his scrotum with violence against the upper rail : the blow gave him excessive pain for some minutes ; but that soon ceased, and he went on with his day's work. Next day his testicle appeared swelled, and was painful to the touch ; but as the man had no subsistence but from his labour, he was obliged to follow it. At the end of a week, he was so much worse that he could go out no longer ; and making his case known to some gentlemen, who used to employ him, a neighbouring practitioner was desired to visit him. A fluctuation being felt, it was supposed to be matter ; and a



warm adhesive plaster was applied to forward it. In a few days an opening was made for discharge of the supposed *pus*, but nothing followed except a very small quantity of bloody serum. The smallness of the quantity, and the nature of the fluid, joined to the very small subsidence of the tumor, induced the surgeon to think he had not gone deep enough; and to thrust a lancet farther in: this was attended with acute pain, and followed by a copious hæmorrhage, which was not easily restrained; or, to speak more properly, did not soon cease. Inflammation, pain, tumefaction, &c. followed this method of proceeding; and at the end of a week, the man was brought to St. Bartholomew's Hospital.

Upon mere sight of the part, I should have supposed the case to have been a schirrus of the malignant kind: the testicle, or scrotum, was large, hard, unequal, of a deep red dusky colour, with distended veins, and so painful that it could not bear the slightest touch; and the spermatic process was far from being in a natural or a healthy state. The man complained of constant pain in his back; the wound

wound discharged a bloody, offensive gleet; and long pain, and want of rest, had given him a very diseased aspect.

Nothing but the clear, and circumstantial account, which both the man, and the surgeon who had attended him (and who came with him to the hospital) gave, could have induced me to have thought the case to be any other than what I have just mentioned; but they were so positive, and so consistent, that I thought myself obliged to regard what they said, and to act accordingly.

By phlebotomy, evacuations, anodynes, rest, a low regimen, and the general anti-phlogistic method, pursued vigorously, and long, he got a cure.

## C A S E XVII.

**A** Gentleman about thirty-seven years old apparently in good health, asked my advice concerning a diseased appearance in his scrotum, for the relief of which he had come from a considerable distance to this town.



The testicle was not much increased in size, but had lost its equality of surface, and was craggy, and very hard; the vas deferens and epididymis were in the same indurated state; the spermatic chord was somewhat varicose, but not hard; and in the cavity of the tunica vaginalis was palpably a small quantity of fluid. It was somewhat tender to the touch; but the pain upon being handled was very slight, in comparison of what was felt an hour or two after such examination, at which time, altho' the pains were not constant, but rather attacked the part by intervals, yet they were extremely acute.

He said, that he had been told that his complaint was venereal; (to which opinion his method of life much inclined him to adhere) and that he had also a beginning hydrocele. I replied, that I wished, for his sake, that I could think so too; but that I had no doubt of its being a schirrus, which would not long remain quiet. He seemed dissatisfied; and said, that considering the person who had pronounced his case to be venereal, was a man of character in his profession, and whose judgment

ment he believed was good, he thought I was rather too peremptory.

I desired him to take the opinion of some people of eminence in London, and named some to him: whether he did or not, I know not; but in about a fortnight or three weeks, I received a letter from him out of the country, signifying, that his friend was so clear, in his first opinion, that the case was venereal, that he had prevailed on him to submit to a salivation for it; and that he only now desired my opinion concerning the best method of procuring it; that is, whether he should attempt it by internals, or by mercurial inunction. I wrote back, that I was sorry to differ from his friend, or to seem too tenacious of, or partial to, my own opinion, and sincerely wished I might be mistaken; that I looked upon the method of salivating by inunction to be in general the least fatiguing or prejudicial to the constitution; and that in the case of particular, local induration, it certainly had the advantage of being applied immediately to the part affected: and therefore, if I could think that his complaint was venereal, I should undoubtedly prefer the use of the ointment



to every internal means ; but that I was so thoroughly satisfied that it was not, and so averse to the use of mercury for him, that I desired him to keep that letter as my protest against the process he was going into.

The ointment was freely used for above a month, but no alteration appeared in the testicle, except that it became rather larger and more tender to the touch.

As the mercurial ointment happened not to affect his mouth, or make him spit any considerable quantity, the inefficacy of it with regard to the testicle was imputed to that ; and a course of the mercurius calcinatus with the kermes mineral, undertaken and followed for another month. During this, the testicle manifestly increased in size, became more unequal, and more frequently painful. He now came to London again ; and calling on me, told me all that had passed ; but being still possessed with the venereal idea, said that he was come hither in order to try the Lisbon diet-drink, or something of that kind.

At my request he shewed his disease to Mr. Nourse and Mr. Sainthill, who were clear that it was not venereal, and advised the

the operation. This he would not hear of at present, having got it into his head, that when every thing else had been tried it would always be time enough for that. During three weeks, that he staid here, he drank, by the direction of some friend, every day a quart of strong decoction of sarsaparilla, with some of the sublimate solution in it. The testicle continued to increase, and the spermatic vein became somewhat varicose: but still there was a fair opportunity for extirpation. He did now indeed, begin to incline to it; but being considerably reduced in strength and flesh by what he had taken, he would not comply with it until he had been in the country, and was somewhat recruited. To which I could not object, as he then did not appear to be a fit subject for such an operation; I mean, on account of his great reduction of strength.

At the end of two months, he came to me again. I was much concerned to see him so much altered for the worse: he was emaciated to the greatest degree; and had such a leaden paleness in his countenance, that had I known nothing of him, I should have concluded that such a man



had a cancer about him. He had totally lost his appetite, and was never free from pain : his testicle was at least twice the size as when I last had seen it, and the whole process quite up to the belly, large, hard, and knotty.

I would now by no means propose the operation ; a consultation of physicians was therefore had, in which the solanum was prescribed. This was immediately tried, and proved here, as it has wherever I have seen it used ; that is, the patient was much disordered by it, in general ; and received no benefit with regard to his disease. But as this affair happened not long after this poison had been in a kind of vogue, it was repeated until the patient could hardly see or hold his hand still. When this was laid aside, recourse was had to the cicuta, which, as usual, was perfectly inefficacious. To it, however, a fair trial was given ; and when the poor man had thus made experiment of our most boasted specifics, and was satisfied, that no honest or judicious man would attempt the operation, we had recourse to opium, during a few weeks that he existed.

When dead, I examined him.

The

The spermatic process was thoroughly diseased about half-way up from the groin to the kidney; that is, it was enlarged, hard, and very full of knots; but I did not find any apparent disease in any other part within the abdomen.

### C A S E XVIII.

**I** Received a letter from Lincolnshire, in the month of November, desiring to know whether that season of the year was an improper one for the operation of castration, in the case of a scirrhus testicle? for that if I did not, a patient labouring under such complaint would set out immediately upon the receipt of my answer.

I wrote back, that the state and nature of the disease were of much more consequence toward determining the propriety or impropriety of an operation, than the time of the year could be: and therefore I desired either that I might have a circumstantial account of the case, from some medical man, or that the patient would come to London. In about a week I received another letter, containing the following account.

That



That the patient was thirty-five years old; that previous to the appearance of the disease in the testicle, he had for some weeks been troubled with frequent, and acute pains in his back and loins; that the testicle was considerably enlarged, indurated, and (in its posterior part) unequal in its surface; that part of the spermatic process nearest to the testis was too hard also; that the whole of it was now perfectly free from pain; that the patient was a married man, much subject to scorbutic eruptions, and flying pains, from the same cause; that his appetite was fallen off, and his aspect become pale and wan; that he had taken a considerable quantity of the cicuta, and as much of the infusion of the solanum as his weak state would bear; that from the former he had neither experienced good nor harm; but that the latter had disagreed with him extremely; that he was now determined for the operation; and that he would be in London in a few days.

In less than a fortnight he came to me. He was extremely thin: and had a countenance so pale, and eyes so languid, that I made no doubt that his nights were sleepless,

less. His testicle was large, and hard, but perfectly equal, and perfectly indolent; the tunica vaginalis contained a small quantity of limpid fluid; and the vas deferens, and epididymis had that kind of enlargement, and induration, which frequently accompanies a hernia humoralis; but the spermatic vessels were in a natural state, of proper size, and free from all kind of induration. He was so hoarse, that I could hardly hear him speak; and so deaf, that it was as difficult to make him hear. He complained much of frequent pains in his shoulders, and elbows, one of the latter of which was considerably stiffened. The biceps muscle of the left arm, was hard, and gummy; on one of his eyebrows was a large spot, with a thin scab on it; and, between the scapulæ, were four or five of the same.

I told him, that I had no doubt that his deafness, hoarseness, pain, spots, swellings, &c. were all venereal; and that I was much inclined to believe, that the complaint in his testicle proceeded from the same cause. He did as venereal patients are frequently too apt to do; that is, he endeavoured to render my opinion improbable,



bable, by attesting, that there had been an interval of some years since he had held any illicit commerce with any woman whom he could suppose capable of injuring him; that he had been two or three years married; had only had a slight shanker, of which he was sure he had been well cured, &c.

I answered, that I was clear in my opinion; and would undertake to serve him on no other principle; but desired him to take the judgement of some other gentlemen of the profession; which he did, and returned to me again with an account, that they thought of his case as I had done.

The weakned reduced state in which he was; and a natural disposition which he had to a hæmoptysis, obliged me to proceed very cautiously: his stomach would bear no medecine of the mercurial kind; and a very little acceleration of pulse, made him hawk up a bloody phlegm. I therefore determined upon the ointment in small quantities, and to do in this case what I have done in similar cases several times; that is, as soon as ever the mercury raised the pulse, or began to affect the mouth,

mouth, I ordered him to take a decoct. corticis twice or thrice a day, thro' the whole of the salivation.

By these means he got rid of all his complaints, both general and particular, and came out of his mercurial course with a more healthy aspect, and more flesh on his bones, than he went into it.

Before I proceed to give an account of the means used for the relief, or cure, of the hydrocele of the tunica vaginalis testis, it may not be improper to inform the reader that I have twice in my life seen this disease, tho' in a confirmed state, and in adult patients, disperse.

#### C A S E XIX.

**A** Gentleman about forty-five years old, consulted me on account of a swelling in his scrotum, which was not very large, but palpably contained a fluid, and was so circumstanced in every respect, as to prove it to be a true hydrocele of the vaginal tunic; from which I advised him to have the water immediately drawn off.

As



As it was not very troublesome to him, he did not choose to have it done then ; but went away, telling me, that I should soon see him again. He took the opinions of two others, both of whom told him the same thing, and gave him the same advice.

At the end of half a year he came to me again, with the scrotum full, and of a pyriform figure, and so large as to be very evident thro' his breeches.

I would have tapped him immediately, but as he had never seen any thing of the kind, I could not convince him that it would not confine him the next day ; and as he had some particular business to transact in the country, he chose to go thither first, and to submit to the operation when he should return from thence.

I saw no more of him for near two months ; at the end of which time he called upon me, and shewed me a scrotum perfectly empty, and free from disease.

Taking it for granted that he had been tapped, I asked him who had done it for him : he told me, that before he could finish the business, for which he went into the country, he was seized (for the first time

time in his life) with a severe fit of the gout; which had confined him to his bed for six weeks, during which confinement his swelling had gradually, and totally dissipated.

I have often seen him since, and he still remains perfectly free from all appearance of disease.

## C A S E XX.

**A** Middle-aged man shewed me a hydrocele of the vaginal tunic, which had been near two years collecting, but from which the water had never been drawn; I advised him to have it done soon, and he fixed on the next morning.

In his way home, he got fuddled; fell down into the area of an empty house, and in his fall struck his scrotum against a piece of scaffolding.

In the morning early he sent for me. I found him in bed, with a great ecchymosis under the skin of the scrotum, which was much swollen, and very painful; I would have persuaded him to have permitted me to let the water out, (thinking thereby



thereby to have taken off part of the tension) but he would not consent ; and I was obliged to have recourse to fomentation, cataplasm, &c.

In about a fortnight all the ecchymosis was dissipated, and all the swelling from the sound side of the scrotum ; and both the patient, and myself thought, that the tumor from the hydrocele was considerably less, than it was before the accident. By persisting in the same method for about three weeks more, the whole of it disappeared, nor has returned since. Nor have I, ever since, seen the same attempt succeed.

## S E C T I O N   V I I I .

### METHODS OF CURING THE HYDROCELE OF THE VAGINAL COAT.

**T**H E methods of cure (as they are called) in this species of hydrocele, tho' various, are reducible to two, *viz.* the palliative, or that which pretends only to relieve the disease in present, by discharging the fluid ; and the radical, or that which aims at a perfect cure, without leaving a possibility of relapse. The end  
of

of the former is accomplished by merely opening the containing bag in such manner as to let out the water: that of the latter cannot be obtained, unless the cavity of that bag be abolished; and no receptacle for a future accumulation left. One may be practised at all times of the patient's life; and in *almost* any state of health and habit: the other lies under some restraints and prohibitions; arising from the circumstances of age, constitution, state of the parts, &c. &c. &c.

The palliative cure, (as I have just observed) consists in merely giving discharge to the fluid which is contained in, and distends the tunica vaginalis.

The operation by which this may be accomplished, is a very simple one. The only circumstances requiring our attention in it, are, the instrument wherewith we would perform it; and the place or part of the tumor, into which such instrument should be passed.

The two instruments in use, are the common bleeding lancet, and the trochar.

The former, having the finer point, may possibly pass in rather the easier, (tho' the difference is hardly perceptible) but is, in



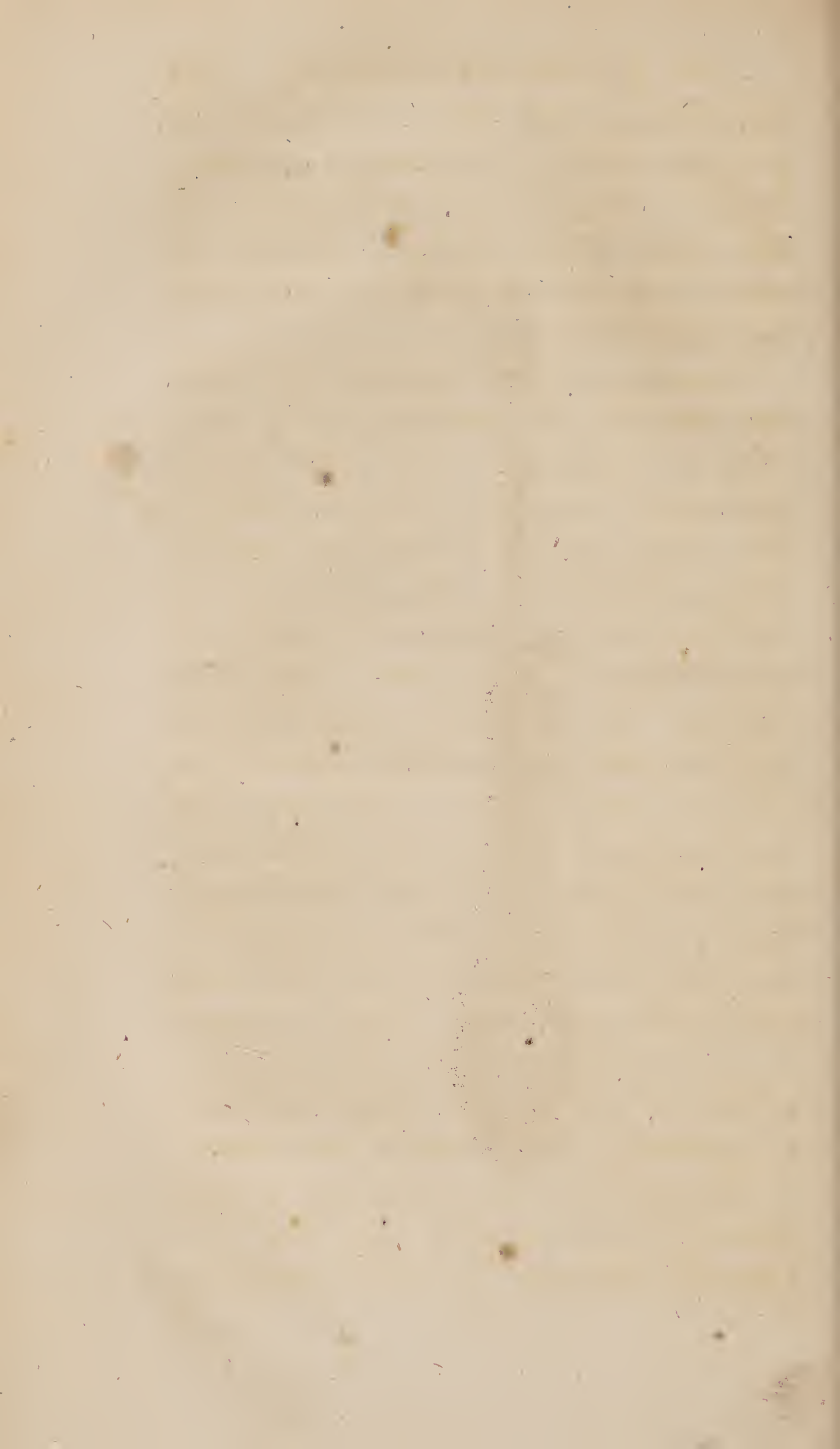
my opinion, liable to inconveniences, to which the latter is not. The trochar, by means of its cannula, secures the exit of the whole fluid without a possibility of prevention ; the lancet cannot. And therefore it frequently happens when this instrument is used, either, that some of the water is left behind, or that some degree of handling and squeezing is required for its expulsion ; or, that the introduction of a probe, or a director, or some such instrument, becomes necessary for the same purpose. The former of these may in some habits be productive of inflammation\* ; the latter prolongs, what would otherwise be a short operation, and multiplies the necessary instruments ; which, in every operation in surgery, is wrong. To which it may be added, that if any of the fluid be left in the vaginal coat, or insinuates itself into the cells of the dartos, the patient will have reason to think the operation imperfect, and to fear that he shall not reap even the temporary advantage which

\* A consequence which I have seen to proceed from it, attended with a slough of the whole dartos, and which I am much inclined to believe would not have happened in the same person, had the water been drawn off by a trochar.

*page 130.*







which he expected. The place where this puncture ought to be made, is a circumstance of much more real consequence ; the success of the attempt, the ease, and even sometimes the safety of the patient depending upon it.

Whoever conceives, as many have done, and some still do, that the testicle hangs loose in the middle of the water within the vaginal coat (like a clapper within a bell) must also suppose that every part of the general tumor is equally fit, and proper for this operation. The idea is erroneous, and the experiment may prove highly mischievous. All the anterior and lateral parts of the vaginal coat, are loose and detached from the albuginea ; in its posterior, and superior part, these two tunics make one ; consequently the testicle is, as it were, affixed to the posterior and superior part of the cavity of the sac of an hydrocele ; and, consequently, the water, or fluid can never get quite round it. This being the state of the case, the operation ought always to be performed on that part of the tumor, where the two coats are at the greatest distance from each other ; and where the fluid must therefore be accumulated in the



largest quantity ; and never on that part of it where the fluid cannot possibly be. The consequence of acting otherwise must not only produce a disappointment, by not reaching the said fluid ; but may prove, and has proved highly, and even fatally, mischievous to the patient.

It was a custom formerly, after performing this operation, to make use of fomentations, and discutient applications, upon a supposition that by such means a return of the disease might be prevented. Among the old writers, are to be found the forms of medicines to be applied to the groin, and scrotum, to prevent a future descent of the fluid ; but anatomy, and experience, have proved the falshood of such supposition, and the absurdity of such applications: the present practitioners content themselves with a bit of lint, and a plaster ; and if the scrotum has been considerably distended, they suspend it in a bag truss ; and give the patient no farther trouble.

In most people, the orifice thus made, heals in a few hours, (like that made for blood-letting ;) but in some habits, and circumstances, it inflames and festers : this festering is generally superficial only, and  
is

is soon quieted by any simple dressing; but it sometimes is so considerable, and extends so deep, as to affect the vaginal coat, and by accident produce a radical cure. I have also seen it prove still more troublesome, and even fatal: but then the circumstances both of the patient, and of the case, have been particular, and such as required attention. (See Cases 21, and 22.)

Whether it arose from a fear of wounding the testicle in the operation, or from a supposition that while the quantity was small, it was more likely to disperse; or that while there was but little fluid they did not think the disease sufficiently characterised; or from some other reason, which they have not thought fit to give us; but many writers of good authority, (and among them Mr. Serjeant Wiseman,) have forbid the puncture in an adult, while the quantity may be supposed to be under a pint: which restriction is still scrupulously attended to by many practitioners, to the no small trouble and inconvenience of their patients.

When there is a sufficient quantity of fluid to keep the testicle from the instrument, there can be no reason for deferring



the discharge ; and the single point on which this argument ought to rest, is this :  
“ Whether the absorbent vessels, by which  
“ the extravasation should be prevented,  
“ are more likely to reassume their office,  
“ while the vaginal coat is thin, and has  
“ suffered but little violence from distension ; or after it has been stretched, and  
“ distended, to ten or perhaps twenty  
“ times its natural capacity ; and by such  
“ distension is (like all other membranes)  
“ become thick, hard, and tough.” For my own part, I think the probability so much more on the side of the former, that I should never hesitate a moment about letting out the water, as soon as I found that the puncture could be made securely. And from what has happened within the small circle of my own experience, I am inclined to believe, that if it was performed more early than it generally is, it might sometimes prevent the return of the disease.

C A S E XXI.

**A** Gentleman, turned of fixty, came to me with an hydrocele of the tunica vaginalis.

He was corpulent, full habited, inclined to be asthmatic, and subject to an irregular kind of gouty inflammation, which attacked different parts of him, at different times. The disease was on the right side, the scrotum much distended, and on the skin of it was an inflammatory kind of blush. His pulse was hard, and as I thought too frequent; and he seemed to me to have a degree of heat, and thirst, not consistent with health. His age, his habit, his general state, and what I apprehended to be the state of the sac, all forbade any attempt but the puncture; and I took some pains to dissuade him from that, until he should have removed both his general complaints, and the local inflammation on the scrotum. He said, that he felt himself perfectly well; that he was sure he had no gout about him then; that what I took for an inflammation on the



scrotum, was only a scorbutic eruption to which he was frequently subject; and concluded with a hint, that he thought whatever should be done previous to letting out the water, could be designed only for my own benefit, by lengthening the time of my attendance.

I pierced the middle and anterior part of the scrotum with a small trochar, and drew off near a quart of a greenish fluid; I put a bit of lint and plaster on the orifice, and as the empty scrotum hung very loose, and flabby, I persuaded him to let it be suspended in a bag truss.

In the afternoon he went out; and at night finding that the plaster was rubbed off, and thinking that the suspensory was put on for no other reason, but merely to keep the dressing on, he took off his bandage.

Next day he went out again, walked a good deal, drank freely after dinner, and when he came to his lodging in the evening he went to bed much out of order. In the night he had a severe rigour, for which he took a large spoonful of a tincture of snake-root and saffron, which he always kept by him.

On the third day finding his scrotum much swollen, and very uneasy, he sent for me.

I found him in bed, complaining of great pain in the lower part of his belly, and groin: his pulse was quick, hard, and irregular; his skin hot; his tongue dry, and black: his countenance flushed; and his intellects not quite steady. His scrotum was swelled and inflamed all over and in a part considerably distant from the puncture, was a mortified spot as big as a shilling.

After I had dressed him, I desired as he was quite a stranger to me, as well as to the people of the house where he lodged, that he might have more assistance: accordingly a physician was sent for, who prescribed for him. At the end of three days one half of the scrotum was completely mortified; and in about seven more it cast off, with so large a portion of the tunica vaginalis, that I had no doubt that none of it was left.

The gout now made an attack on his feet, and the inflammation left all other parts; the sore put on a good aspect, and in a short time he got well. But notwithstanding



standing the very large portion of the vaginal coat which came away in a slough, I have twice since drawn off a full pint of water from the same side.

## C A S E XXII.

**A** Man about forty, afflicted with a large hydrocele of the tunica vaginalis, and which, from a misapprehension of the true nature of the disease, he had never consulted any body about, having been robbed by a servant of a considerable sum of money, was obliged to travel very hard, on horseback, from the neighbourhood of Exeter, to London.

When he set out, his scrotum was free from all disease, except its distention by the water; but when he came to this town, it was covered all over with an inflammation of the erysipelatous kind; was much increased in size, and very painful to the touch. He was much fatigued with his journey, and just before he went to bed in the evening, had a shivering, which was followed by a very restless night, and a considerable degree of fever,

In

In the morning his scrotum was so much inflamed, that he was alarmed at the appearance, and sent for assistance. The person who came to him, immediately made an opening, by means of a pointed knife, into the tunica vaginalis, and gave discharge to a considerable quantity of water; but, by night, the whole scrotum was mortified. That evening I saw him, but without any hopes of being able to serve him. His pulse, which had been full, hard, and rapid, was now small, and faltering; his head was very unsteady, and his extremities cold; all the tumefaction of the scrotum was gone, and it seemed one large eschar. On the next morning he died.

Now, tho' it be very possible, that the same appearance and event might have ensued, if no puncture had been made; yet I think it is very clear, that it would have been more prudent to have tried first what a soft cataplasm, and an antiphlogistic method could have done. For, by making the opening hastily, and without a proper prognostic, the operator (whether deservedly or not) incurred all the blame.



## C A S E    XXIII.

**A** Poor man was brought from the neighbourhood of Rosemary-lane, to St. Bartholomew's Hospital.

His scrotum was of prodigious size; very hard, excessively inflamed, quite up to his groin; it was of a dusky red color; extremely painful to the touch; and in one part seemed inclined to sphacelate; the spermatic process also, was considerably thickened. He had a hard, full, rapid pulse; a hot skin; a flushed countenance; great thirst; and complained of most excruciating pain in his back.

The account he gave, was, that he had for some years been troubled with a swelling on the right side of his scrotum, which some of the surgeons of St. Thomas's Hospital had told him was a water-rupture, and would have tapped: that he had also applied to several rupture-doctors, each of whom had sold him a bandage, and some of them had pretended to cure him by medicines and applications: that finding no relief from any of these, he had

a few days before given an itinerant stage-quack three guineas to cure him. That this operator laid him on his back, on a couch, and lifting up the tumor, thrust an instrument into it. That no discharge followed but blood. That it bled for near a quarter of an hour, and then stopped upon his fainting away. That from the time of this operation (which was two days) he had been in extreme pain; and, that his operator not coming to take any care of him, his friends had brought him to the hospital. He was immediately bled, had a glyster injected, and the scrotum was enveloped in a soft warm pultice, and tied up in a bag truss. When he had passed a stool, I ordered him a grain of extract. thebaic. to be taken immediately, and repeated again at the distance of six or eight hours. Next day he was much the same in every respect; his pain was excessive, particularly in his back, and he had not closed his eyes. I bled him again freely, (he had two stools in the night) and gave him two grains of opium, and direction to repeat one grain every six hours until he got ease and sleep. His scrotum was well fomented, and the cataplasm continued.

Two



Two days more were spent in this manner, before we obtained any remission of the symptoms, when that was done, I pierced the anterior part of the tumor, and drew off more than a pint of bloody serum. The testicle now appeared very much enlarged, and hardened; but by persisting in the antiphlogistic method, he at length got well.

I suppose the reader will have as little doubt as I have, that all this mischief was produced by wounding the testicle, or epididymis.

#### C A S E XXIV.

**A** Young fellow, who was waiter at a tavern in the city, and who had for some months past laboured under a succession of pocky symptoms, had at last a true venereal sarcocoele, with a small quantity of fluid in the vaginal coat.

As he had several other venereal symptoms then upon him, and his way of life subjected him to great irregularity, I advised him to obtain leave to quit his place, and attend to his cure. This he did not chuse

chuse to comply with; and I heard no more of him till about a month afterwards, when his master desired me to call at his house.

I found the lad in bed, with a high fever, and with his scrotum swelled, and inflamed to a very great degree. He said, that two days before he had met with an acquaintance (a surgeon's mate of a man of war) who told him, that his whole complaint was a water-rupture, and that for a bottle of claret he would cure him immediately. That he had thrust a lancet deep into the lower part of the swelling; that nothing followed but blood; that he had spent some minutes in poking into it with a probe, in hopes of getting the water out, but ineffectually; but that he had been in racking pain ever since. Phlebotomy, glysters, opiates, febrifuge medicines, &c. were all employed, by which means his pain, fever, &c. were at length got the better of; but almost the whole testicle cast off in one large slough.



## MEANS for a RADICAL CURE.

**E**Very other method of treating this kind of hydrocele, except the puncture, was either originally intended to obtain a radical cure ; or, having been found to have been often productive of such, has been by different people, ranked, sometimes among the palliative, sometimes among the radical means.

In many of the old writers are found directions for obtaining the cure of this disease by the use of a seton, a cannula, a tent, a caustic, a ligature, an injection, or an incision.

Some of these are adopted, or preferred by one, and some by another, according to the theory which they entertained of the disorder ; or to the benefits which they had seen to have accidentally arisen from the use of the said means.

To reduce these under some kind of method, (which the manner of their being delivered to us, does in general not very easily admit) we may say, that the seton, the tent, and the cannula, were  
either

either originally meant to palliate a disease, of which the old practitioners had very disagreeable apprehensions ; or that they were made use of upon a supposition that the fluid contained in the cyst, was in itself noxious ; or that the general habit of the patient was relieved, and many other disorders prevented by the said humor falling, or being deposited in that part ; or from an opinion that the cure of it ought not, by any means, to be hastily, or rashly attempted : that the caustic, cautery, and ligature, were designed to prevent the supposed descent of the water from the abdomen into the scrotum : and, that the injection was calculated for the constriction of a supposed breach in lymphatic vessels.

Some of these (happily for mankind) are now quite laid aside ; the reasons for their use being found to be false and groundless : of this kind are the cautery, the ligature, and the injection. The water is now, by every body who has made any enquiry into the matter, known to be formed and collected in the part where it is found ; and not to have fallen into it from the belly : and, tho' an obstruction



in the lymphatic vessels of the spermatic chord, may in some degree prevent the regular and due absorption of the fluid, from the vaginal tunic, yet, no breach, or rupture of such vessels, can ever produce the disease in question: the extravasation in such case, must be in another part; and may possibly cause a hydrocele of the cellular kind, in the common membrane of the spermatic vessels, but which can never be found within the tunica vaginalis.

The reasons originally given for the use of the tent, and the cannula, *viz.* the noxious quality of the fluid, and the necessity of a gradual cure, are now also known, and acknowledged to be without foundation; and therefore tho' these methods, or methods like these, do still continue to be used, yet it is with another view, and upon other principles: not with intention to lengthen the time of a cure, by making a gradual drain for the prevention of other disorders; but merely, to abolish the cavity of the tunica vaginalis, by having excited, and maintained such a degree of inflammation and suppuration, as shall produce an union between that coat, and the albuginea testis.

This

This is indeed the only rational end, which can, by any of these means, be pursued : for the disorder being absolutely local, and the tunica vaginalis (the seat of it) most commonly somewhat altered from its natural state, by having been distended ; unless the absorbent vessels can again be restored to a capacity of doing their duty, (a circumstance which does not very often happen) the arteries will continue to exhale new serum into the cavity, and the hydrocele will still remain, or be renewed in a short time after each discharge.

To obtain this end, two kinds of means are proposed ; in the use of one, it is intended, by means of a small wound, to excite such a degree of inflammation, as shall occasion, or be followed by, a total, and absolute cohesion of the tunica vaginalis with the tunica albuginea : in the other, a larger and more free incision is made ; whereby the cavity of the former of these coats, is converted into a hollow, or open sore, or ulcer, to be filled up by a new incarnation ; or else, a part of the said tunic being cut away, its power of again holding the extravasated fluid is equally prevented.



The first, or union of the two coats in consequence of inflammation has sometimes been found to follow the use of such means, as were intended to procure only a temporary relief : it sometimes follows the simple puncture with the trochar, or lancet ; the ancient method of letting out the water, by a small incision, frequently produced it \* ; and the seton, the tent, and the cannula, tho' used for another purpose, or at least for other reasons, were found to be followed by it so often, that they soon were ranked among the means for obtaining a radical cure †.

They

\* This was by making, first an incision of some length, thro' the scrotum, and dartos, so as to lay the tunica vaginalis bare, and then by making a puncture in the latter. The accounts given by Brunus and Theodoric, are the same as that of all the writers before them, and have been copied by many since : “ *Curatio ejus est, ut*  
“ *incidatur cutis testiculorum sectione ampla secundum*  
“ *longitudinem ejus ; dein perfora, et aquam extrahe.*”

† Many of the old writers have left us directions, for passing the seton, and for introducing the tent, either of lint or sponge, and the cannula, either of alder, or of silver.

Gulielmus e Saliceto, having first proposed the use of external applications, says, “ *Si hac via non consumitur a-*  
“ *qua, tunc perforabur sam, cum phlebotomo tuo acuto,*  
“ *et extrahe aquam, non subito totam, sed partem ; et*  
“ *pone in foramine illo tentam lineam, vel stuppeam,*  
“ *aut*

They were indeed, (as I have already observed) originally designed to discharge the water gradually; and to continue such a drain from the parts where it had been

L 3 collected,

“ aut spongiam; ut posses de die in diem aquam extra-  
“ here: et nota quod hujusmodi ægritudo multoties re-  
“ cidivat; et si sic, semper redeas ad perforationem ante-  
“ dictam: et via ista, et modo, perfecte curabitur.”

Fabritius ab Aquapendente, speaks of the tent as frequently used by him, in the mixed case of hydrocele, and sarcocoele, or diseased testicle; tho' by the account he gives of his success it is pretty clear, that he used it in the hydrocele only; or when the testicle was not really diseased. His words are, “ Si carnosæ simul et aquosæ  
“ sit hernia, ego talem adhibeo curam. Seco cutem, et  
“ incisionem facio exigua et in loco potius altiori, quam  
“ in fundo; inde, turunda imposita cum digestivo, et pus  
“ movente medicamento procedo, neque unquam totum  
“ pus extraho, sed perpetuo bonam partem intus relin-  
“ quo, quod sensim carnem corrodat, et ita sanat.” An  
adhesion of the vaginal coat, with the albuginea, may be  
the consequence of such treatment of an hydrocele, and  
consequently such patient may obtain a radical cure;  
but whoever has seen any thing of the disease properly  
called a sarcocoele, will know, that it will very seldom  
bear such rough treatment.

This method of procuring a firm cure (by the tent) is mentioned by Ruysch: “ Sanari quidem valet id mali  
“ pertuso scroto, ope instrumenti touchart dicto, vellan-  
“ ceola phlebotomica, ut aqua vulnere exeat, sed citò  
“ plerumque recrudescit malum. Si autem curationem  
“ aggredieris aperiendo scrotum a parte superiori ad latus,  
“ tumque vulnus turunda oblonga unguento rosaceo,  
“ mercurio



collected, as might prevent any of the ill consequences, apprehended, from the removal of the local disorder: but the inflammation, which supervened sometimes, producing

“mercurio præcipitato rubro inuncto oppleveris, donec  
 “lenis inflammatio, eique succedens suppuratio parva,  
 “membranulas stillantes putrefecerit, tuncque eas te-  
 “naculo eduxeris, &c.”

Professor Munro, of Edinburgh, has proposed a method of cure, upon the same principle; but much better, and more likely to procure the one thing aimed at, (the lenis inflammatio) as he employs no cathartic medicines. His words are: “Considering how readily  
 “contiguous inflamed parts grow together; and how  
 “many instances there are, of people having a radical  
 “cure made of this hydrocele, by inflammations coming on the part; it would seem no unreasonable  
 “practice, to endeavour a concretion of the two coats  
 “of the testicle, when they are brought contiguous;  
 “after letting out the water, thro’ the cannula of a  
 “trochar, by artfully raising a sufficient degree of inflammation.

“This to be sure must be done cautiously, and so  
 “that the surgeon can reasonably expect to be master  
 “of the inflammation; and therefore the application  
 “of all irritating medicines, the operation of which he  
 “could not immediately stop, or any single mechanical  
 “effort, the effect of which he could not be sure of,  
 “are not to be employed.

“Suppose the cannula of the trochar was to be left  
 “in; by the extremity of it rubbing against the testicle,  
 “an inflammation might be artfully raised; the cause

“of

producing a cohesion of the sacculus, to the surface of the testicle, what was originally calculated for a palliative remedy only, was by many adopted for a radical one.

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If

“ of which might be taken away as soon as the surgeon  
“ thought fit, &c.” Medical Essays.

This method, with some small alteration, I have once or twice used with success. Being afraid of the pain which might be caused by the extremity of the cannula rubbing against the tunica albuginea, and the irritation in consequence thereof, I have left it in, but with a piece of bougie (whose length exceeded that of the cannula about a quarter or an eighth of an inch) within it. Of all the methods of using a tent, I think this is the best, as the cannula secures its passage into the cavity of the vaginal coat ; which the collapsing of that tunic, and the loose texture of the dartos, would otherwise render somewhat difficult. But altho’ I have once or twice succeeded in this manner, I have much oftner been frustrated : sometimes it has proved absolutely ineffectual ; and at others, I have seen it raise such a disturbance, as to render it necessary to lay the whole cavity open before a cure could be obtained.

Of all the methods of obtaining a radical cure of an hydrocele, by exciting inflammation within the tunica vaginalis, and thereby obtaining an adhesion between it and the albuginea, that by the seton is by much the best ; it is the least painful, the most easily managed, excites the least troublesome symptoms, and is the most frequently successful : but, as I shall have occasion to speak of this hereafter, I shall defer saying any more concerning it in this place.



If the event, and consequence flowing from these means, were as much in our power, as they have been said to be ; that is, if we could with any tolerable precision or certainty determine the degree of inflammation to be excited, and the effect of such inflammation on the vaginal coat, there would be no doubt of the utility of them ; but this is far from being the case ; for altho' it sometimes is sufficient for the purpose wished for, and rises no higher than just to a degree equal to that purpose, yet it also frequently happens, that either such degree and extent of it is not excited, or it rises much higher, and proves much more painful and fatiguing, than was promised or intended ; or (what I have several times seen) after a great deal of pain, and confinement, a partial cohesion only has been the consequence, and the disease has still remained, notwithstanding all the patient's and our trouble. Sometimes the pain, inflammation, and symptomatic fever, are but little ; but on the other hand, they are all three sometimes so great as to become alarming, at least to a patient who has been taught to expect a cure upon much more easy terms.

The

The whole scrotum sometimes becomes excessively inflamed, and after a good deal of pain, and trouble, large deep floughs are produced, and the process becomes as irksome as any of those, whose event, (with regard to a cure) is much more certain.

If the inflammation be but slight; the pain, and tumefaction, moderate; the symptomatic fever light; the suppuration small, and an universal cohesion of the two membranes is produced; the event is very fortunate, and a very troublesome complaint is thereby got rid of, upon very easy terms. If the event proves what I have mentioned in the second place; that is, if either the inflammation be confined to the dartos, where it sometimes produces several superficial abscesses (of no consequence toward the cure of the disease;) or if it has been so partial, as only to have occasioned the cohesion between the tunics of small compass, the cavity will not by this means be abolished, nor any thing like a radical cure be obtained; consequently the patient will have undergone all the fatigue, confinement, or pain, (be it more or less) for nothing. But if the  
inflamm-



inflammation rises high, if the scrotum swells considerably, and large deep floughs are formed (as sometimes happens) the symptoms, and the hazard are then fully equal, to what attend those more certain methods. Which of the three will be the event, no man can say. Under the same external appearances, different people are more or less liable to inflammation, and fever ; the confinement of matter, in consequence of too small an opening, will in some habits make strange havock, in a very short time ; and if a large opening, and a plentiful suppuration must at last be submitted to, the method by a large incision at first, is preferable, as the cure is more certain, and the loss of time less. Different circumstances in the patient, will render one method preferable to, and more likely to succeed, than another ; but whenever a cure is attempted by any of the before-mentioned means, the uncertainty of the event should be made known, and the patient be apprised of what may happen, either with regard to trouble or disappointment.

All the methods hitherto taken notice of, are calculated to produce a perfect, or  
radical

radical cure, without making a large wound, or bearing the appearance of a chirurgical operation : those of which I am now to speak, are intended for the same purpose ; but by making a large and free opening into the bag containing the fluid, to render the accomplishment of such purpose more certain.

These are called the cure by *caustic*, and the cure by *incision*. The cure by caustic, is calculated to spare the terror which a cutting instrument always conveys ; and, (as the patrons of it say) to avoid the painful symptoms, and hazard, which frequently attend a large incision in these parts. The method is this : a piece of the common paste caustic, rather less than a finger's breadth, properly secured by plaster, is applied the whole length of the anterior part of the tumor, which will necessarily make an eschar of proportional size. When this eschar either casts off, or is divided, an opening of nearly the same length and breadth is thereby intended to be made into the cavity of the tunica vaginalis testis : by which means an opportunity is given to the surgeon to apply such dressings to the inside of the  
said



said tunic, as shall by the generation of new flesh, fill up, and abolish its cavity. The preference which some practitioners have given to this method before that by incision, has been upon a supposition that a circumstance which very seldom happens, will most frequently occur; I mean the penetration of the caustic thro' the vaginal tunic, containing the fluid.

By this they hope to avoid the symptoms which are supposed to be generally excited by the division of the said bag, by a cutting instrument. I will not say, that the caustic never does this; but I must say, that I have very seldom seen it do so. If the tumor be very large and full; the containing parts very much on the stretch; and the skin and dartos very thin; the caustic may now and then penetrate thro', to the vaginal coat; but this, whatever may be thought or pretended, very seldom happens; and when it does not, the tunica vaginalis must be divided in the same state, and manner, as if no caustic had been applied. All the difference between the two methods (caustic and incision) will then amount to this; that in the former, the skin being mortified, the patient is freed

freed from a part of his apprehension at its being cut; and the surgeon, fancying that his escharotic has gone thro' the vaginal coat, will divide it, as a part of the eschar: but a more careful examination of what he is about, at the time of such operation, would generally convince the latter, that he divides the bag unaltered by the caustic; and the symptoms which often attend this process, confirm it. It has indeed been proposed to divide the eschar made in the skin, down to the surface of the tunica vaginalis, and then by the application of a fresh caustic to make an eschar in that coat also. But whoever makes, or submits to this experiment, will find that of two evils, he chuses the greater; and to avoid the pain of incision, incurs a much greater degree of it by the repetition of the escharotic. The pain attending the first application of the caustic, is indeed to some persons but little; but in many it is fully equal to that of the knife, and must always be of much longer duration: if it does not penetrate the tunica vaginalis, that bag must be divided by a cutting instrument (as I have already said) in the same state as if no caustic had been applied;



applied ; which incision is, and must be accompanied, with the same symptoms, (in the same person) as in the operation by the knife only. Nor can we at all times confine the caustic, so as that it shall not cause a much larger sore, than is intended, or can be necessary.

Upon the whole, the cure by caustic, as it spares the terror, and apprehension of a bloody operation by the knife, and as it requires no dexterity in the operator, may, on those two accounts become preferable both to many patients and surgeons ; yet whoever promises to perform, or expects to receive a radical cure by caustic, upon much easier terms than by incision, will most frequently be disappointed ; that is, they will frequently find the fever, and inflammatory symptoms full as high, and the sore full as painful in the one as in the other ; and consequently all their care and attention to obviate mischief, full as necessary. Neither is the necessary confinement, in general, at all less in the one than in the other.

One of the methods made use of by the ancients, to let out the fluid from an hydrocele of the vaginal coat was, (as I have  
already

already observed) by making a pretty large division of the scrotum and dartos, and having by that means laid the tunic bare, to make an opening into that also, and thereby discharge the contents. This method sometimes produced a perfect cure in the first instance, but much more frequently produced only a temporary relief. If the opening made in the tunica vaginalis was small, and united again immediately, the bag filled again with water, and the disease recurred; but if the orifice, instead of immediately uniting, became inflamed, or sloughy, such an adhesion of that coat to the albuginea testis sometimes followed, as caused an abolition of the cavity of the former, and consequently a radical cure. Tho' this happened now and then, and the cure was really accidental, yet it furnished a hint for attempting to obtain the same end, with a much greater degree of certainty. This was by dividing or laying open the whole cavity or bag containing the water: and that, sometimes by a mere simple division of it; sometimes by the total removal of some part of it.

Paulus



Paulus Ægineta, Albucasis, Severinus, and many others of the best of the ancient writers, have given a particular account of this operation; and it has at all times been practised by some, tho' it has generally been decried, and dreaded. In what manner, and with what caution it may have been executed, by those who have given so bad an account of it, I know not; but by what I have seen of it, I am very confident that the ills attending it, have been much exaggerated; that under proper cautions and restrictions, it will be found to be practicable with perfect safety; and that it ought by no means to be laid aside. Some writers of very good character, have appeared very averse to it, and have ascribed to it such symptoms in general, as are indeed very alarming; but which do not occur, unless the operation be performed improperly, or on subjects unfit for it. I have practised it very often, and do not remember to have seen any ill effects from it, more than two or three times. I would be very cautious how I advanced any thing in a matter of this kind, which experience would not vindicate; or by which others might be mis-led; but I have so often  
made

made the experiment, and with much success; that I cannot hesitate to assert, that under the necessary restraints, regarding age, habit, state of the disease, &c. it is a very useful operation, and may be practised with great propriety. I may, perhaps, be thought to speak better of it, than it deserves; I am not conscious that I do; but I am much inclined to believe, that they, who appear so averse to it, have either practised it on improper subjects, and in improper circumstances; or, having imbibed a prejudice against it, have been unnecessarily alarmed at what would not in other cases have alarmed them; or, that not being sufficiently apprehensive and attentive, they have suffered their patients to get into circumstances of hazard, which are not justly chargeable on the operation merely, and would not happen under more careful management.

Advanced age, an apparently bad or cachectic habit, a disposition to anasarca or leucophlegmatic swellings, an intemperate life, the custom of drinking spirituous liquors, and any such general disorder in the constitution, as is likely to increase the symptomatic fever, which such an opera-

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tion



tion must necessarily produce, are just objections to it: any disease of the glandular part of the testicle, its coats or vessels, an old irreducible hernia, a diseased state of the urethra, prostate gland, or neck of the bladder, are (while they continue) good reasons for not performing it: but, *consideratis considerandis*, in young and healthy people, and in a recent state of the disease, this method of obtaining a radical cure is a very good, and a very practicable one.

The method of performing the operation is, as follows. Having appointed an assistant, to grasp the upper part of the tumor, in order to render it tense below, a puncture should be made in the lower and anterior part, through the skin and vaginal coat. If the operator intends to finish the incision with a knife, he should make this puncture large enough to admit the end of his fore finger; which he should introduce immediately, before the water is all discharged, and the vaginal coat collapsed; and upon that finger, so introduced, he should continue his division of the whole length of the bag, and of the scrotum which covers it. If he intends to use the  
probe-

probe-scissars (a more tedious and a more painful method) he may make his first puncture with a lancet, and then introduce his scissars. Upon the first division, the water rushes out, and the tumor subsides; if the puncture be made small, a part of the fluid will insinuate itself into the cells of the dartos, and by the immediate collapse of the vaginal coat, the operator will find some difficulty, in introducing either his finger or his instrument into the orifice made in it; if he does not do this, he will divide only the skin and dartos, and the patient must undergo a second incision, for the division of the cyst; all which inconvenience may be avoided, by making the first opening large enough for the introduction of the finger; and when that is in, all the rest is, upon that, very easily executed\*.

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When

\* Some practitioners, terrified at the accounts which they have received of the operation, and yet being desirous of producing a radical cure in this manner, have thought that they might lessen the hazard, by reducing the size of the incision; and therefore make a very small one: but whoever depends upon this, will find himself mistaken. An incision made one fourth of the length of the sac will be attended with all the trouble and hazard, which follow one of two-thirds; with this additional inconvenience, that the former will very often prove ineffectual at last.



When the vaginal tunic is divided, and the fluid thereby discharged, the testicle, covered only by its tunica albuginea, comes into view; and if the incision was either begun, or continued very low, it generally thrusts itself out from the wound. This should be gently replaced; and if the vaginal coat is not much thickened, by having been long distended, nothing more need be done, than to lay a small quantity of fine lint\* into its cavity; and then covering the wound with a large pledgit and a soft bolster, tye the scrotum up in a suspensory bag. This operation, if properly performed, may be executed in a very few seconds: it requires no other violence, than the mere division of the parts; and if this division be made with a knife, rather than scissars, it will require much less time, and cause much less pain.

The membranous structure of the parts, on which this wound is inflicted; their continuation from the peritoneum; and the great irritability of some of those which are necessarily laid bare, and put under a  
ne-

\* By no means to fill, or distend it, or to make any pressure on the testicle; whose tunica albuginea is very irritable, as well as acutely sensible.

necessity of receiving dressings, must occasion pain, and symptomatic fever: this it is the business of art to moderate and relieve ; phlebotomy, lenient aperitives, febrifuges, and opiates, will therefore become necessary. But in this case, as in many others, it will generally be found much more easy to prevent bad symptoms, than to remove them, when they have been permitted to attain a considerable height. The operation is, or ought to be, confined to the young and the healthy, in whom inflammatory symptoms are most likely to occur ; but (I believe I may venture to say) to whom we have more efficacious remedies to apply in such disorders, than can be used to people of a different habit, and in different circumstances.

The general induration of all the parts about, the thick tumid lips of the incision, and the general inflammatory enlargement of the scrotum, have, for the first four or five days, a disagreeable appearance ; and may, if neglected or mis-treated, prove very troublesome or even hazardous ; and the kind of discharge, which during that time is made (a thin discolored gleet) seems very unequal to the reduction of so much tumefaction ;



mefaction ; but when the febrile symptoms are appeased, and a kindly suppuration begun, let the surgeon have patience, and not by an over-officiousness, or by improper dressings, interrupt nature in what she is about : let him, by warm fomentations, keep the parts clean, and perspirable ; let him dress the wound with a small quantity of soft, easy, digestive applications ; and covering the whole scrotum\* with a soft, warm pultice, suspend it in a proper bag ; and he will, in general, soon see a favorable change in all the appearances : he will see the inflammation disappear, the tumor resolve, and all the tumefaction in due time subside. But if he neglects these general cautions, and, under a notion of assisting digestion, goes to work with precipitate, and other irritating dressings, the face of things will not be so agreeable ; the tumor will not subside, and he will continue, or rather create a painful, undigested sore, with all  
its

\* The impalpable farina seminis lini, put into boiling water, with a proper quantity of ung. sambuc. fresh butter, or lard, is the easiest made, and is the neatest, softest, smoothest, and most relaxing application of the kind ; has nothing offensive in its flavour ; nor is it, like most other cataplasms, likely to excite a herpes.

its consequences ; but, for which, he only is accountable \*.

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\* The great hardness, which almost always attends inflammations of these parts, has (I suppose) been the reason, why so many writers have advised, and so many practitioners still use such applications, at (though really escharotics) are called dissolvers of induration, and removers of obstruction.

I would be very cautious, how I made objection to what so many have recommended ; and, in a matter of mere speculation, would rather doubt my own judgment, than that of some others ; but this is a fact, of which I have too often been convinced, to be mistaken ; and, therefore, I cannot help saying, that it appears to me, that all applications of this kind, even the mildest of them, (the red precipitate) are generally very improperly used ; that they give unnecessary pain ; and retard, what they are used with design to expedite.

Inflammatory hardness and tumefaction is not peculiar to the scrotum, upon its being wounded : it is common to all parts of similar structure ; that is, the adipose and cellular membrane all over the body.

When such parts are irritated by a large wound, they cannot resist a sudden influx ; the consequence of which, must, for a time, be obstruction, induration, and swelling : but, one moment's reflection on the natural structure and state of these parts, before such wound was inflicted, or such irritation excited, will prove that ease, relaxation, and free suppuration, must be the intentions proper to be pursued ; and that every application, which either stimulates, gives pain, or corrodes, must pervert, and counteract such intentions.

The breasts of women, the axillæ of both sexes, the parts surrounding the intestinum rectum, the cellular mem-



In about six weeks, the scrotum is generally reduced to nearly its natural size ;  
and

membrane in the perinæum, under the integuments of the penis, and in several other parts of the body, are liable to this kind of alteration, when injured ; but this induration is very unlike to a glandular one, and requires very different treatment. In the latter, a destruction of parts is sometimes necessary, and escharotic medicines may therefore be required : but in the former, mere relaxation is all that is wanted : whatever gives ease, and appeases the inflammatory tension, will best produce matter, and answer the purpose which ought to be aimed at.

The most convincing proof, of the truth of this doctrine, may be drawn from that case, which, of all those which affect this kind of membrane, is generally the most troublesome. I mean the fistulæ in perinæo. In these, the induration and enlargements of the parts is sometimes so great, as to be very alarming ; hard, callous excrescences ; deep and long sinuses, with small orifices ; constant pain and irritation, from the lodgment of matter and urine ; a symptomatic fever of the hectic kind ; and a difficulty either of retaining the urine within, or expelling it from the bladder, make a part of the most frequent characteristics of this disease ; and yet, even these cases, terrible as they are, do frequently admit relief, and are sometimes even cured, without any destruction of parts, or the use of any one escharotic application ; a free division of all the hollow and hard parts ; the application of soft, easy digestives, and of a warm, relaxing pultice ; a total abstinence from all such external remedies, as corrode or irritate ; and all such internal ones, as under the title of deobstruents, increase the velocity of the circulation, and waste the patient's strength, by watching, purging and sweating ; and an easy and gradual distension of  
the

and when the wound is quite healed, the cicatrix is a mere line, correspondent to the original

the urethra, by a simple *unmedicated* bougie; will, in some instances, (indeed in all, where any good can be done at all) remove most of these disagreeable circumstances and appearances: in which cases, a kindly supuration will be afforded by all the divided parts; a florid, well-conditioned incarnation will be the consequence; the cicatrix will be small, soft and moveable, and very unlike to what must follow from the use of cathartic applications.

This is really a matter of much greater general importance, than it is supposed to be: the symptomatic fevers, which are either produced or maintained by the injudicious application of painful dressings, are much more frequent than they are thought to be: not to mention the loss of time which they must always cause, and the very disagreeable deformities they often occasion.

The surgery of most of our forefathers was coarse and rough; and many of the practitioners affected a kind of brutal, unfeeling rusticity: the old maxim. “Dolor “*medicina doloris*,” was so generally received, that the surgeon almost forgot his patient’s sensation; and the common people thought they were neglected, if they were not tortured. Lord Bacon’s most excellent advice, “*inveniendum quid natura ferat aut faciat*,” was but half remembered; they tried very sufficiently, what nature would bear; but very seldom had patience to know, what she could do. Under a mistaken notion of going to the bottom of wounds and abscesses, and of dissolving indurations, they crammed and distended the cavities, and corroded and irritated its sides, till a train of bad symptoms were often excited, which the original disease had no share in the production of.

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original incision ; which is a circumstance of more consequence to the patient, than is imagined ; especially, if he be obliged to get his bread by labor.

If

That this is no exaggeration, let their works testify ; and that something of this kind is still too much in use, is too well known. All dressings are in fact extraneous bodies ; and when they either consist of such materials, as give pain, and excite irritation, or are crammed in with injudicious violence, they are foreign bodies, with other mischievous qualities annexed. Where destruction of parts is necessary, the sooner it is executed the better, and the necessary pain must be complied with ; but in the application of dressings to the inside of abscesses, to hollows made by the removal of diseased parts, to large sores attended with hardness, and inflammation of the common membrane : in short, wherever mere suppuration is required, they cannot be too light, soft, and easy ; all that we have to do, is not to obstruct nature in the execution of those offices, to which she is generally fully equal ; in which we can lend her no assistance, beyond removing impediments out of her way. In the particular case of the divided tunica vaginalis ; that degree of thickness and hardness, which it sometimes acquires by long distension, is urged as a reason for the use of caustic applications : but this is a method of reasoning to which I cannot agree, having often experienced the contrary. That membrane, like all others of the exanguious kind, is difficult, and slow of digestion, especially if altered by disease ; but that it will in time become sloughy, digest, and yield a kindly suppuration and incarnation, by the mere use of simple, easy applications, and without that of any escharotic (not even the red precipitate) I have often and often experienced.

If the tunica vaginalis, containing the water, by long or frequent distension, or from any other cause, is become thick and hard, and cannot therefore contract itself, or be contracted, upon the evacuation of the fluid; it will contribute considerably to the thickness of the lips of the wound, as well as to their hardness, pain, and difficulty of digestion. In this case, the best way is to remove a part of it, on each side, at the time of the operation. The cellular structure of the dartos easily admits this to be done; and when these sides are thus taken away, the lips of the wound consist only of the common integuments. A knife will do this with much more ease and expedition, than any other instrument whatever. The method proposed by the late Mr. Douglass, of doing it by repeated snips of the probe-scissars, is operose, unhandy, and unnecessarily painful and tedious; nor is the cutting away an oval piece of the scrotum, as advised by that gentleman and some others, at all necessary: on the contrary, the more loose that part of the scrotum is, which is to cover the testicle (now deprived of its vaginal coat) the better; as it will be more capable of corrugation.

With



With these cautions, and under the proper restrictions (already mentioned) this method of obtaining a radical cure is very practicable. That it is sometimes accompanied by troublesome symptoms, is beyond all doubt; and so is the method by caustic. I cannot say, that I have never seen it prove fatal; nor can that be said of any operation of consequence. Much depends on the choice of a proper subject, and the observance of the necessary means and cautions; without which, both this, and the use of the caustic, will always be troublesome, and sometimes hazardous.

Before I finish the account of this method of cure, I would take the liberty of mentioning one circumstance more, which appears to me to be of consequence. When the quantity of fluid is large, and the scrotum and tunic much on the stretch, I think it is better to discharge the water by mere puncture; and not to perform the operation for the radical cure, until a fresh accumulation has again moderately distended it. The inflammation necessarily consequent upon the division of these parts, just after they have been so much on the stretch, and so suddenly let loose, may be, (and I think

think I might say, that I have seen it prove) productive of worse symptoms, and a higher degree of fever and tumefaction, than usually occurs, when the same parts are divided in a less distended state.

This method of obtaining a radical cure by incision, of which I have given the fairest and most impartial account in my power, must always be considered as a matter of choice, and never can be an operation of necessity: that is, they who are afflicted with the disease, for whose cure it is calculated, will always have it in their power to be temporarily relieved by the palliative means, or may make trial of any of the above-mentioned less certain attempts, without incurring any, or a very small degree of hazard. Now as this method can never be said to be totally and absolutely void of some danger; as it bears the appearance of an operation of some severity; and as it must always be voluntarily, and deliberately submitted to, without any real necessity from the circumstances of the disease; in other words, as it must be chosen by the patient, merely to avoid the trouble and inconveniences attending the disorder; and not necessarily applied



applied to, as some other operations are to save or preserve life, it does not often happen that we are called upon to practise it.

The number of people labouring under this disease, and who come within the above-mentioned necessary restraints, from age, habit, manner of living, date of the complaint, thickness of sac, &c. &c. &c. is great. And that of those, who either have an insuperable dread of an operation, or are so circumstanced or connected in life, as to make any such degree of danger highly improper to be voluntarily incurred, is still greater : so that by far the majority of those who are afflicted with the disorder, are obliged (however irksome it may be, or however disagreeable it may prove to them) to carry it through their life, seeking relief now and then from the palliative remedy of tapping. This renders it to the active and to the laborious, a complaint of more consequence than is generally imagined.

From these considerations, I have often been induced to think seriously on the subject, and to make many experiments ; the result of which, when likely to prove at all

all useful to mankind, or creditable to the art of surgery, I shall always think myself obliged to communicate.

Every practicable method proposed by the antients, I have tried; and have found them in general painful, fatiguing, hazardous, or inefficacious.

The tent, whether of lint or sponge, is subject to great objections, both in its first application, and its future necessary continuance. The cellular structure of the dartos, and the loose connection between the skin and tunica vaginalis, renders its introduction (unless a cannula be used) sometimes difficult. When in, great care must be taken to keep it there for some time, or the effect intended (an inflammation of the vaginal coat and albuginea) cannot be obtained; and the means made use of for its distension, as well as the nature of the tent itself (especially if made of sponge) prove frequently very fatiguing, not to say mischievous, by the irritation, and the necessary confinement of the matter. And, after all, I have several times seen it produce only a partial cohesion; and that so small an one, as to prove no cure at all; nor at all prevent the future accumulation  
of



of water, or the necessity of frequent tapping.

The cannula, when used for the same purpose instead of a tent, is indeed easily introduced ; and when in, does not confine the matter : but then its hardness, inflexibility, and thin edge, and the absolute impossibility of directing or managing it, in the frequent and necessary motions of the patient, though confined to his bed, renders it a very unpleasant and troublesome guest within the tunica vaginalis ; and if, to avoid this inconvenience, a piece of bougie be kept within it, this, while it is there, confines what ought to be discharged.

The point to be aimed at, is to excite such a degree of inflammation, both in the tunica vaginalis, and tunica albuginea, as shall occasion a general and perfect cohesion between them : and this, if possible, without the production of flough or abscess ; without the hazard of gangrene, and without that degree of symptomatic fever which now and then attends both the caustic and the incision ; and which, when it does happen, is so alarming both to patient and surgeon.

These

These ends I have frequently obtained, by the use of a seton. It is a method of cure mentioned by Aquapendens, as used by Guido, and others before him; (though their process was somewhat different from mine.) I have several times tried it on subjects of very different ages, some of them more than fifty years old. It requires confinement to bed only for a few days; after which, the patient may lay on a couch to the end of the attendance; which is generally finished in about three weeks, or a month at the farthest: and, during all that time, no other process or regimen is necessary, than what an inflammation of the same part from any other cause (for example, a hernia humoralis) would require.

The manner of performing it is as follows. Choose a time, when the vaginal coat is moderately distended; and having pierced it with a trochar of a tolerable size, draw off the water: when that is done, introduce into the cannula, a probe armed with a seton, consisting of ten or twelve strings of candle-wick cotton. Pass the probe as high to the upper part of the vaginal coat as you can; and on the end of that probe make an incision of such size, as



to enable you to pull it out easily, with a part of its annexed seton; then cut it off the probe, and tie the cotton very loosely, covering the orifices with pledgits. By the next day, the seton wilt be found to have contracted such an adhesion to the tunica albuginea, as would cause a great deal of pains to detach; but this, it is perfectly unnecessary to do: and it should be suffered to remain without molestation. In about forty-eight hours, the scrotum and testicle begin to swell and inflame: the patient should then lose some blood, and have a stool or two; and the whole tumified part should be wrapped in a soft pultice, and be suspended in a bag-truss. The disease from this time bears the appearance of a large hernia humoralis, and must be treated in the same manner, by fomentation, cataplasm, &c.

The adhesion of the seton to the albuginea generally continues firm; and I never meddle with, or offer to move it, until it becomes perfectly loose; which it seldom does for the first fortnight, or until the inflammation is going, and the tumor subsiding. By the time the seton becomes loose of itself, the coalition of parts is  
firmly

firmly and universally accomplished. I then withdraw it, and heal the orifices with a superficial pledgit.

This method, as I said before, I have several times successfully practised on subjects, on whom, I would not by any means have attempted, either the use of the caustic, or have performed the operation of incision. I cannot say, that I have never seen any ill consequences to attend it; but they have been very few, and I think it so much preferable to all the other less perfect methods, that I shall not, (unless something new occurs, which may induce me to alter my opinion) hesitate to practise it, wherever a radical cure is desired, and the incision is either refused, or thought improper.

## S E C T. IX.

### THE HÆMATOCELE, OR TUMOR FROM BLOOD.

**T**HIS is a swelling of the scrotum, or of the spermatic process, proceeding from, or caused by blood; and, though spoken of by writers as one simple disease,



is liable to so considerable variety, both with regard to nature, and situation, as to admit, or even require, being divided into several kinds.

Such distinction of the different kinds of hæmatocele, though not usually made, is absolutely necessary toward rightly understanding the disease; the general idea, or conception of which, appears to me to be somewhat erroneous, and to have produced a prognostic which is ill-founded, and hasty. According to my conception, and experience in this matter, the disease, properly called hæmatocele, is of four kinds; two of which have their seat within the tunica vaginalis testis; one within the albuginea; and the fourth, in the tunica communis, or common cellular membrane, investing the spermatic vessels.

In passing an instrument, in order to let out the water from an hydrocele of the vaginal coat, a vessel is sometimes wounded: which is of such size, as to tinge the fluid pretty deeply at the time of its running out: the orifice becoming close, when the water is all discharged, and a plaster being applied, the blood ceases to flow from thence, but insinuates itself partly into the  
cavity.

cavity of the vaginal coat, and partly into the cells of the dartos; making, sometimes, in the space of a few hours, a tumor nearly equal in size to the original hydrocele. This is one species.

It sometimes happens, in tapping an hydrocele, that although the fluid discharged by that operation be perfectly clear, and limpid; yet, in a very short space of time (sometimes in a few hours) the scrotum becomes as large as it was before, and palpably as full of a fluid. If a new puncture be now made, the discharge, instead of being limpid (as before) is now, either pure blood, or very bloody. This is another species: but, like the preceding, confined to the tunica vaginalis.

The whole vascular compages of the testicle, is sometimes very much enlarged, and at the same time rendered so lax, and loose, that the tumor produced thereby, has, to the fingers of an examiner, very much the appearance of a swelling composed of a mere fluid, supposed to be somewhat thick or viscid. This is, in some measure a deception; but not totally so: the greater part of the tumefaction, is caused by the loosened texture of the testis;



but there is very frequently a quantity of extravasated blood also.

If this be supposed to be an hydrocele, and pierced, the discharge will be mere blood. This is a third kind of hæmatocele ; and very different, in all its circumstances, from the two preceding : the fluid is shed from the vessels of the glandular part of the testicle ; and contained within the tunica albuginea.

The fourth consists in a rupture of, and an effusion of blood from, a branch of the spermatic vein, in its passage from the groin to the testicle. In which case, the extravasation is made into the tunica communis, or cellular membrane investing the spermatic vessels.

Each of these four, I have seen so distinctly, and perfectly, that I have not the smallest doubt concerning their existence, and of their difference from each other.

The tunica vaginalis testis, in a natural and healthy state, is a membrane, which, although firm, is of no great thickness ; it is white, or rather of a reddish white colour ; and its blood-vessels are (in a healthy state) no more apparent to the eye, than are those of the tunica albuginea : but when it  
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has been long, or much distended, it thereby becomes thick, and tough ; and the vessels (especially those of its inner surface) are sometimes so large, as to be very visible, and even varicous. If one of these lies in the way of the instrument, wherewith the palliative cure is performed, it is sometimes wounded : in which case, as I have already observed, the first part of the serum which is discharged, is pretty deeply tinged with blood.

Upon the collapſion of the membranes, and of the empty bag, this kind of hæmorrhage generally ceases, and nothing more comes of it. But it sometimes happens, either from the toughness of the tunic, or from the varicous state of the vessel, that the wound (especially if made by a lancet) does not immediately unite ; but continues to discharge blood into the cavity of the said tunic, thereby producing a new tumor, and a fresh necessity of operation.

This is what I have taken the liberty to call the first species of hæmatocœle, and plainly and evidently consists in a wound of a vessel of the vaginal tunic.

Upon the sudden discharge of the fluid, from the bag of an overstretched hydro-



cele, and thereby removing all counter-pressure against the sides of the vessels, some of which are become varicous, one of them will, sometimes, without having been wounded, burst. If the quantity of blood shed from the vessel so burst, be small, it is soon absorbed again, and, creating no trouble, the thing is \* not known. But if the quantity be considerable, it, like the preceding, occasions a new tumor, and calls for a repetition of the operation. This I call the second species: which, like the first, belongs entirely to the vaginal coat, and has no concern either with the testicle, or with the spermatic vessels. In both, the bag which was full of water, becomes in a short space of time distended with blood: which blood, if not carried off by absorption, must be discharged by opening the  
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\* From this cause it very often happens, that the last running (if I may use the phrase) of the water from an hydrocele, is bloody (all the former part having been perfectly clear;) and from hence it is, that a bloody discharge may almost always be produced upon the same occasion, by pressing and handling the scrotum. They, who would see a very ingenious account of this kind of hæmatocele, and a very probable application of the same principle, for the solution of some other appearances in diseases, may find it in the Edinburgh essays from professor Monro, the father.

containing cyst ; but in neither of these can castration (though said to be the only remedy) be ever necessary : the mere division of the sacculus, \* and the application of dry lint, to its inside, will, in general, if not always, restrain the hæmorrhage ; and answer every purpose, for which so severe a remedy has been prescribed. The other two are indeed of more consequence ; they interest

\* It may indeed happen, that the blood of the patient may be in such state, as to be incapable of coagulation : in which case, the hæmorrhage will continue from the inside of the sac, although it be laid open ; and also from all the divided parts. This circumstance, though a very hazardous one, cannot be foreseen ; nor do I know, in this state of the juices, what benefit can arise from the removal of the testicle : for the hæmorrhage will certainly be continued, from all parts of the wound necessary in such operation, upon the same principle, and for the same reason that it could not be restrained from the inside of the sac. Such an indisposition of blood is often, in cachectic habits, the cause of very troublesome and fatal hæmorrhages, at some distance of time from amputation, as well as immediately. If this want of an agglutinant quality in the blood, is not corrected, or is not capable of correction, it generally goes hard with the patient, let the operation be what, or where it may : for it is not merely the suppression of the bleeding that is required ; the same ill quality of blood will prevent suppuration, produce bloody, sanious gleeing, gangrene and mortification. This is an evil ; of which every practitioner must have seen so many instances, that it is needless to produce particular ones.



interest either the testicle itself, or the vessels by which it is supplied with blood, and rendered capable of executing its office ; and are sometimes not curable, but by removal of the part.

One of these is seated within the tunica albuginea of the testicle ; the other in the tunica communis of its vessels : they are neither of them very frequent ; but when they do happen, they call for all our attention.

If blood be extravasated within the tunica albuginea, or proper coat of the testicle, in consequence of a great relaxation, and (as it were) dissolution of part of the vascular compages of that gland ; and the quantity be considerable, it will afford, or produce a fluctuation, to the hand of an examiner, very like to that of an hydrocele of the tunica vaginalis ; allowing something for the different density of the different fluids, and the greater depth of the former from the surface.

If this be mistaken for a simple hydrocele, and an opening be made, the discharge will be blood ; not fluid, or very thin ; not like to blood circulating through its proper vessels, but dark, and dusky in colour ;

colour; and nearly of the consistence of thin chocolate (like to what is most frequently found in the imperforate vagina.) The quantity discharged will be much smaller than was expected from the size of the tumor; which size will not be considerably diminished. When this small quantity of blood has been so drawn off, the testicle will, upon examination, be found to be much larger than it ought to be; as well as much more loose, and flabby; instead of that roundness and resistance arising from an healthy state of the gland, within its firm strong coat; it is soft, and capable of being compressed almost flat, and that generally without any of that pain and uneasiness, which always attend the compression of a sound testicle. If the bleeding ceases upon the withdrawing the cannula (supposing a trochar to have been used) and the puncture closes, a fresh accumulation of the same kind of fluid is soon made, and the same degree of tumefaction is produced, as before the operation: if the orifice does not close, the hæmorrhage continues, and very soon becomes alarming.

In the two preceding species, the blood comes from the tunica vaginalis; the testis  
itself



itself being safe, and unconcerned; and the remedy is found, by opening the cavity of the said tunic: but in this, the hæmorrhage comes from the substance of the testicle; from the convolutions of the spermatic artery, within the tunica albuginea: the division of the vaginal coat can here do no good; and an incision made into the albuginea can only increase the mischief: the testicle is spoiled, or rendered useless, by that kind of alteration made in it, previous to the extravasation; and castration is the only cure, which a patient in such circumstances can depend upon.

The last species of this disease arises from a bursting of a branch of the spermatic vein, between the groin and scrotum, in what is generally known by the name of spermatic process. This, which is generally produced by great, or sudden exertions of strength, feats of agility, &c. may happen to persons in the best health, whose blood and juices are in the best order, and whose genital parts are free from blemish, or disease.

The effusion, or extravasation, is made into the cellular membrane, which invests and envelopes the spermatic vessels, and  
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has something the appearance of a true hernia. When the case is clear, and the extravasated blood does not give way to discutient applications, the only remedy is to lay the tumor fairly open, thro' its whole length. If the vessel or breach be small, the hæmorrhage may be restrained by mere compression with dry lint, or by the use of styptics; but if it be large, and these means do not succeed, the ligature must be made use of. If the bleeding branch can be tied singly, the testicle may be preserved; if it cannot, and the whole spermatic process must be included, it is unnecessary to add, that the testicle must be removed.

#### C A S E XXV.

**A** Healthy man, about thirty years old, desired me to let out the water from an hydrocele; which operation, he said, had, for some time past, been performed upon him, twice a year, by the late Mr. Bell of Red-Lion-Square; and he desired also that I would do it with a lancet. I let out near a pint, the first part of which was deeply tinged with blood; but as it ran, it became clearer and clearer, and at last was perfectly



fectly limpid ; and when I put on the plaster, he did not bleed a drop. The next morning, he came to me again ; told me, that he had bled a good deal in the night ; and shewed me his linnen, which was very bloody. As there was no discharge at this time, I only renewed his plaster, put him a bag-truss on, and desired that he would go home, and keep quiet. He remained free from hæmorrhage for some hours ; and therefore neglecting my last caution, he walked about a good deal, and heated himself, and the next day sent for me to look at his scrotum ; which was large, and full : making no doubt, from all the circumstances, that the tumefaction was from blood, I told him my opinion ; and, at the same time, advised, if it did not dissipate, by proper attempts for that purpose, to submit to have the vaginal coat laid open, and thereby obtain a radical cure.

Some time was spent, in attempting discussion ; during which, the tumor increased, and he, now and then, bled pretty freely from the orifice ; which became spongy, and would not heal.

Finding all endeavours ineffectual, he submitted : the tunica vaginalis was laid open ;

open ; a considerable quantity of blood was discharged (some in a fluid state, but principally grumous ;) he had no disagreeable symptoms ; and, in about six weeks, was perfectly well.

## C A S E XXVI.

**A**N elderly man, who had often had a large hydrocele tapped at the Hospital, came one day, as usual : I made a puncture with a lancet, and let out the water ; but was near half an hour, before I could stop an hæmorrhage from the wound.

The next day he came again and complained to one of my dressers, that he had bled, more or less, all the night. He was properly dressed ; the bleeding restrained ; and he was advised to go home, and keep quiet upon the bed.

The third day, when I was again at the Hospital, he came and shewed me his scrotum ; which was as full, and as large, as when I first tapped it : the orifice was not healed ; and, upon pressure, blood was discharged from it. He said, that he could not afford to rest from his labor ; and my  
week



week for accidents being expired, Mr. Crane took him under his care.

He (finding the bloody discharge still continued, notwithstanding the man kept in bed, and was properly taken care of) made a free incision into the tumor; turned out a good deal of coagulated blood with his finger; and then, lightly filling the cavity with lint, obtained a suppression of the hæmorrhage, and produced a radical cure.

#### C A S E XXVII.

**A** Gentleman who used to come to London, about every five or six months, to have a large hydrocele emptied, came to me under a great alarm.

Having often had the water drawn off by puncture in London, he determined to let the apothecary of the village where he lived, do it for him, and thereby save him the trouble of a journey. The operation was very properly performed, and the bag perfectly emptied; but the next morning, to his great astonishment, he found it as full as before. His apothecary was as much surpris'd as himself; and the patient  
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got into a post-chaise, and came immediately to London.

Upon hearing this account, and seeing, and feeling the tumor, I made no scruple of declaring it to be blood ; and that if it did not soon dissipate by rest, and proper applications, it must certainly be let out.

All attempts for dispersion proved fruitless, the tumor increased, and as his health and habit were good, and his age by no means advanced, I advised him to submit to an incision ; by which, I hoped that he would not only get rid of the present evil, but would most probably obtain a radical cure. He complied, upon condition that I would first by puncture satisfy him, that I was right in my conjecture with regard to the contents.

I passed a lancet into the fore-part, and gave discharge to a clear blood : while that was running out, I made, by means of a probe-pointed knife, an incision of sufficient size, to admit a doffel or two of fine lint. For a day or two, the symptoms were untowardly, and the discharge was large, and bloody ; but by proper care, keeping very quiet, and taking  
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freely of the bark with elixir vetrioli, every thing ended well.

## C A S E    XXVIII.

**A** Lusty healthy man, about forty, who had the care of a manufacturer's warehouse in my neighbourhood, consulted me on account of a large hydrocele of the tunica vaginalis. The tumor was very large, the parts considerably on the stretch, and I advised him to have it tapped directly.

About twenty ounces of clear water were drawn off by means of a trochar, without the appearance of a drop of blood. As he had carried his burthen long, and had never been relieved from it before, he was much surpris'd at this immediate ease, and went to work as soon as he got home.

The next morning he came to me much alarmed, and shewed me his scrotum; which was full half as big, as before the puncture had been made. I had no doubt, that its present content was blood; and very apprehensive that it might require the same treatment, as the preceding case; which in his constitution, and manner of living,

living, must have been attended with hazard.

I ordered him home to bed immediately ; took some blood from his arm ; and directed a cooling purge to be taken next morning : the scrotum was suspended, and wrapped in a rag, folded seven or eight times, and wetted in a solution of sal. ammon. crud. in vinegar and water, and he had direction to keep it constantly wet. On the third day I bled him again, and ordered him another purge for the fourth, and continued the same application.

Finding the swelling quite at a stand, and imagining that by mending his state of blood, a farther effusion might possibly be prevented, and an opportunity given for the absorption of what was already shed, I advised him to take a dram of the cortex every six hours : this he did for as many days ; during which, the tumor visibly lessened : and, by persisting in the same method, he got well : that is, all that degree of tumefaction, which, I suppose to have been caused by blood, disappeared. After some months the scrotum became large again ; and he followed the advice which I had given him, *viz.* to have the fluid



drawn off, before it attained too large a size. I have several times since tapped it, and always have drawn off a clear fluid.

## C A S E XXIX.

**A** Man, about forty-seven, of a fallow complexion, and subject to cholicky complaints, had the water drawn off from a hydrocele of the vaginal coat, by means of a small trochar. The quantity was near a pint, and the bag was perfectly emptied. The next morning, it seemed to contain a fluid, although in no great quantity; he shewed it to the person who tapped him the day before, and who advised him to put on a bag-truss, and to take a smart purge. In three days it was so manifestly increased, as to alarm the patient, and make him desirous of farther advice.

On the sixth day from the first operation, I saw him, and found the scrotum so much enlarged, that I made no doubt, the vaginal tunic contained at least seven ounces; which I suspected to be blood.

I advised a discutient application, and the free use of the cortex; but this did not suit the humour, either of the patient or of his surgeon.

surgeon. He took three or four purges of rad. jallap. and made use of a warm fermentation. At the end of about a month, I was desired to see him again. The tumor was larger, and his strength impaired by his purging. It appeared to me to be now of such a size, and in such state, that nothing but the operation could serve him; and for which I prepared him, if the puncture should produce a discharge of blood only. An opening was made with a lancet, and the discharge was clear fluid blood: I would have proceeded, but the patient would not permit me; and he was dressed with a superficial pledgit, and a plaster.

Blood oozed from the orifice all that night, and part of the next day; and when I saw him again, he could not have lost less than a pint.

I was well aware, what might be the consequence of a division of the tunica vaginalis, in such a habit; but, at the same time, it seemed to be the unicum remedium, for he would take no medicine. The hæmorrhage continuing another day, he submitted. The operation discovered no one bleeding vessel; nor did I imagine that it would, being convinced that it came from



the inside of the tunic. He was dressed with dry lint, and put to bed with an opiate: all that night, and the succeeding day, the discharge was large, and bloody: and the lips of the incision, on the second were flabby and free from inflammatory tumefaction. I told him my opinion freely, and pressed him to take the bark, or have more assistance; both which, at that time, he refused to do.

On the close of the third day, the hæmorrhage still continuing, he becoming sick and faint, and his pulse failing a little, he was alarmed, and permitted us to direct for him. A draught, consisting of a dram of bark, half a dram of confect. cardiac. and three or four drops of tinct. thebaic. was ordered to be taken every four hours.

Not to make the account tedious, by a relation of every minute circumstance, he persisted in this method, and it was four days before the bleeding ceased, or the edges of the incision became inflamed, or shewed any tendency toward suppuration. But at last, with some difficulty, he got well.

C A S E XXX.

**A** Labouring man, who had fallen down in the street, with a load on his back, was brought into St. Bartholomew's Hospital, on a suspicion of his having got a rupture, in consequence of his fall ; he having immediately perceived a swelling in his groin, and scrotum, which he had not before.

The tumor seemed to occupy the whole spermatic process ; which was so enlarged by it, that it was impossible to feel the passage of it from the abdomen, through the muscle : but the testicle below it was perfectly distinct.

The appearance of a tumor ; the suddenness of its formation ; the distinct situation of the testicle below ; and an accidental circumstance, of the man's not having had a stool for two days past, inclined Mr. Freke (whose week it was) to believe it to be, and to treat it as, a rupture. He made some attempts for reduction ; and, finding them fruitless, determined upon the operation immediately.



He divided the skin and membrana adiposa, down to what he took to be the hernial sac ; and when he had so done, had a mind to endeavour at the return of the intestine, without opening the sac.

Mr. Freke was a man not easily to be dissuaded from what he had a mind to do ; and, having got the whim into his head, was determined to make the experiment on this, which he thought a fair case for the purpose. Accordingly (with his probe-scissars) he divided the tendinous opening in the abdominal muscle ; and then again tried to reduce the gut, but to no purpose ; for nothing would go up. At last, though with much reluctance, he was obliged to lay open the containing membrane. He had no sooner done this, than a large quantity of blood, (partly fluid, and partly grumous) burst forth, and the whole tumor subsided ; leaving the process perfectly free ; and containing neither intestine, nor omentum.

The parts were now washed clean, and diligent search made for the breach, whence this blood issued ; but none could be found : the man was dressed with lint and pulv. boli armen. (a method of dressing, which

Mr.

Mr. Freke was fond of ;) and in a proper space of time, the man got well, without any new hæmorrhage.

In this case, some of the circumstances might be said to render an intestinal hernia not improbable ; and the want of stools might have increased such probability : but then, it should have been considered, that, although this be one symptom of the strangulated intestine, yet it is not, by any means, an univocal, or infallible one. A want of stools may happen from other causes, even in a person who has a rupture ; but cannot singly be a reason for the operation immediately ; which ought to be indicated and authorised by other concomitant symptoms and appearances. A costive habit may attend a person, who has an intestinal hernia, when the gut labours under no stricture, and does its office perfectly well in the scrotum ; but such patient will not have the symptoms of an incarcerated intestine, nor, indeed, had this man. His not having been at stool two days before, was an accidental circumstance ; which might or might not have been occasioned by the descent of a piece of the intestinal canal : the truth of which should have been proved  
by



by the use of a clyster and a purge, before an operation had been performed.

## C A S E XXXI.

**A** Young fellow, straining to get rid of a hard stool, felt a sudden pain in his left groin ; and, upon examination, found a swelling, extending from thence into the scrotum. He took it for a rupture, and immediately applied to an advertising operator ; who, after several unsuccessful attempts to reduce it, put a truss on him ; and told him, that the tumor would gradually shrink to nothing. The truss he wore for some days ; when, finding both his pain and swelling increase, he applied to a surgeon in his own neighbourhood ; with whom I saw him.

The tumor was large, and had somewhat the feel of an omental hernia ; the abdominal aperture seemed to be dilated by it ; the testicle was tolerably distinct below ; his pain in an erect posture was considerable ; but in a supine one very little : he had neither heat, nor quickness of pulse, nor hiccough, nor vomiting ; and had been thrice at stool that day.

As

As there was no reason for supposing any degree of stricture on the intestinal canal, I advised the keeping him in bed, bleeding him freely, and trying what a proper pul-tice would do.

This method was tried, for several days ; but without any benefit : on the contrary, the pain increased, as well as the tumor ; and a fluctuation within became palpa-ble.

This fluid, I thought possibly might be collected in the sac of an omental hernia (a case which I had more than once seen ; ) and as there was plainly enough in quantity, to render a puncture perfectly safe, we made one with a lancet, and let out some ounces of clear blood.

When the swelling was thereby lessened, we felt for the spermatic vessels, but could discern them very indistinctly ; and the process seemed much loaded, and enlarged.

Next day, the man was perfectly well in health ; but the scrotum looked swelled, and black, as if it had been much bruised : he had also bled from the puncture, which was not closed, and discharged blood freely, upon any pressure being made above.

Though



Though we were in some doubt, concerning the true nature of the case ; yet, it was clear, that if the hæmorrhage continued, the part must be laid open.

For three or four days it continued, notwithstanding all our endeavours ; and, at last, it was so considerable, as to indicate the operation immediately.

A knife was introduced into the orifice made by the lancet, and an incision of some length made ; but no sacculus, no particular cavity found ; nothing like a hernial sac, or tunica vaginalis testis ; in short, nothing but cellular membrane ; which satisfied us, that the blood must come from the spermatic chord.

As the bleeding still continued, and was derived from a part above our incision, we continued it quite up to the groin, and found that all the cellular membrane of the process was loaded with extravasated blood ; and that it came from a considerable breach now in view. We dressed it with lint pressed out from a styptic, and intended to have permitted that dressing to have remained on for a day or two : but we were soon sent for, on account of an alarming return of the hæmorrhage ; which had been so considerable, as to produce a swoon.

Castra-

Castration appeared to us, to be the only remedy ; and it was immediately performed.

C A S E XXXII.

A Middle-aged man came to St. Bartholomew's Hospital, and desired me to look at a swelling in his groin, and upper part of the scrotum on the right side ; which, he said, came suddenly, by lifting a heavy weight. From the groin quite down to the testicle, the spermatic process was enlarged ; he had no symptoms of a hernia ; and the testis was much too distinct and free for a hydrocele.

While I was examining it, I perceived some blood to drop from the lower part of the swelling ; and, upon enquiring the reason, he told me, that a puncture had been made in it, a day or two before (upon a supposition that the swelling was from water ;) that it had, at intervals, bled ever since ; but that, since it had last stopped, the tumor was increased. From these circumstances, I concluded the swelling to be caused by blood, shed into the tunica communis,



munis, from a branch of a varicose spermatic vein.

He submitted to have it laid open : no particular breach was discovered ; though the whole membrane was much loaded : the wound was dressed with lint pressed out from spirit. vin. These dressings were suffered to remain on, until they were separated by a beginning suppuration : and by keeping quiet, and being properly taken care of, the man got well, without any return of hæmorrhage.

### C A S E XXXIII.

**A** Poor man was brought to my house, by a gentleman of the profession, for my opinion concerning a tumor of the scrotum.

The swelling was large ; of a globular kind of form ; painful, not only in general from its weight, but often even when suspended, or when the patient was in bed. It palpably contained a fluid ; but the fluctuation of that fluid was not (to my fingers) like the fluctuation of water. In all the posterior part of the tumor, an enlarged, and somewhat hardened testicle might plainly  
be

be distinguished; and the general weight of the whole, far exceeded that of any hydrocele I had ever met with of equal size. That it was not a mere simple hydrocele, I was very clear: but, whether it was a collection of fluid in the tunica vaginalis of a diseased testicle (what is in general called a hydrofarcocoele) or what other morbid or altered state of parts it might be owing to, I would not pretend to say. A puncture was made in it with a small trochar; and about four ounces of dark-coloured blood, not so fluid as blood generally is, while circulating in its proper vessels, was drawn off; a bit of plaster and lint was applied to the orifice, and the man went about his business.

In two days, the same surgeon brought the man to me again. The puncture was healed; but the tumor was as large as when I had seen it two days before, and palpably contained the same kind of fluid. What that was we knew: and the consideration was, what was the properest method of giving the man relief. Had he been in good health, I believe, I should have advised laying the tumor open; at least so far as to have obtained a more precise knowledge

ledge



ledge of its nature: but the patient's age, and general health were such, as would by no means make an operation of that sort an eligible thing. He was near to sixty; asthmatic; had drank freely; and had a yellow countenance, and swelled legs in consequence of it. I advised him to come into the hospital, and try, whether by proper care his habit might not be mended. Soon after his admission, I had a mind to see, whether the contents of the tumor were really the same as before, and made a puncture in it again with the trochar: the discharge was again blood; and it was two days from this operation, before a bloody discharge from the orifice ceased.

A continuance of dram-drinking brought on a general anasarca, and an extravasation of water in the abdomen; and when he had been in the hospital about two months, he died.

I would not omit the opportunity of examining his scrotal disorder; and found, that the trochar had, at each operation, pierced the tunica albuginea; that the bloody extravasation was within that coat; that the tunica vaginalis was almost universally, tho' slightly, adherent to the surface of the albuginea;

ginea ; that the vascular compages of the whole testicle was much enlarged, and at the same time so loosened, that a part seemed to have been dissolved into the fluid which produced the fluctuation, which fluid was mere blood ; and that the epididymis was hardened, and very considerably enlarged.

I have since had an opportunity of seeing a patient labouring under the same complaint ; whose testicle was rather hastily, and inadvertently laid open ; that is, divided. The immediate consequence was a large, and obstinate hæmorrhage. Whether it was produced by the division of the substance of the testicle, or by the irritation of such applications as were made use of for stopping the bleeding, I will not pretend to say ; but when I saw him, he had a rigid neck ; and was (what is commonly called) jaw locked. Castration, from the state in which his testicle was when I saw it, must have been the only remedy for his local complaint ; but his spasmodic attack rendered that improper, and every thing else fruitless.

I have also (from a very ingenious practitioner of my acquaintance) received an

P

account



account of a similar case ; in which the testicle was divided, and the hæmorrhag (from the patient's obstinate refusal to submit to the operation of castration) proved at last fatal.

## S E C T. X.

**T**O the different kinds of hydrocele, which have already been mentioned, some of the modern French writers have added another, *viz.* that which is formed by a collection of fluid, in the sac of a true hernia.

The title of this clearly describes its true nature ; and therefore I shall only inform the reader, of what has fallen within my own knowledge relative to this disease.

## C A S E XXXIV.

**A** Young fellow, about twenty-five years old, applied to me, on account of a swelling in his scrotum. It was large, of an irregular figure, not very tense, perfectly indolent, and accompanied with a remarkable fulness of the spermatic process.

The

The account which he gave of himself was, that he had had a rupture, as long as he could remember : that he had, on that account, worn a steel truss for many years ; that, upon taking his truss off, his rupture always came down immediately, and was very easily returned up again ; that it had never occasioned any obstruction in his stools, nor given him any pain ; that, about a year ago, he had been persuaded to leave his truss off, and to substitute in its place, a bandage made of dimotty, without any iron in it ; but which had been buckled on very tight : that, when he had worn this bandage about six months, he found that his rupture was down, and that he could not get it up again ; that, upon this, he had applied to the person of whom he bought the bandage ; who, after having ineffectually tried to reduce the rupture, sold him another bandage, and buckling it on still tighter than the first, assured him, that it would never do him any harm ; that from the time of putting on this second, his scrotum had gradually become larger, with considerable pain and uneasiness.

From the feel of all the lower part, I made no doubt, that the tumor contained



a considerable quantity of fluid ; and had there been no other circumstance to influence my judgment, I should have supposed the disease to have been a hydrocele of the tunica vaginalis testis: but the very distinct and particular account, which the man gave of himself ; and the feel, and the appearance of the spermatic process, made me hesitate.

Whatever might be the true nature of the case, a fluid there certainly was ; and that in quantity sufficient to render the discharge of it both safe and warrantable. I made a puncture in the middle and anterior part, and let out above a pint of brown serum. This discharge removed all the swelling from below ; but made little or no alteration, either in the look, or the feel of the upper part of the process. I endeavoured to reduce it ; but found it impracticable, and desisted ; advising the man to let it alone, to wear no bandage of any kind ; and if at any future time, it became troublesome to him, I desired that I might see it.

In about a year's time, he came to me again, with his scrotum as big as before, and palpably containing a fluid.

As

As I had felt the testicle very plainly after the first operation ; and as I did not believe the tumor in the process to be formed by the intestine, I advised him to have the whole laid open. He submitted, and I took him into the hospital for that purpose. I made an incision, from the middle, and anterior part of the scrotum, quite up to the groin, and found in the lower part of the bag, which contained the fluid, the testicle covered only by its proper coat, or tunica albuginea ; and in the upper part, or neck of the same bag, a considerable portion of omentum. The upper part of this portion of caul was hardened in its texture, and so perfectly adherent to every point of the neck of the sac, as to prohibit the return of even a fluid from thence into the belly : but the lower part was in its natural state, loose, soft, and capable of being expanded. All the lower, or loose part, I cut off, without making a ligature, or being troubled with any hæmorrhage ; the upper part I left as I found it ; filled the wound lightly with dry lint, and treated the case, as I should have done that of the radical cure for an hydrocele. In about seven weeks the man got well, and has ever since remained so.



This man's rupture was of the congenial kind ; and therefore the sac of the hernia, and that of the hydrocele, were the same, *viz.* the tunica vaginalis testis.

### C A S E XXXV.

**W**HILE the first edition of this book was in the press, Mr. Spray desired me to visit a patient with him, who had some pressing symptoms of a strangulated rupture.

The patient was a healthy young man, about twenty-two years old ; and he gave the following account of himself.

That as long as he could remember, he had been subject to a rupture, which never came lower than his groin, was always easily put up, and had never given him any trouble : that he had, when a child, worn a truss ; but, either from its being ill-made, or from his not knowing how to put it on, it had never answered the purpose ; and that he had, for some years, disused it ; that, for a month or two past, his rupture had been constantly down ; and that, within that space of time, he had never been able to return it, though he had often tried ;  
that

that still, as it gave him no pain, nor produced any other inconvenience, than the mere swelling of the scrotum, he had taken no notice of it; nor applied to any body for assistance, until within the last three days; since which, he had been affected with great pain in his belly, a stoppage of stools, and a vomiting.

The lower part of the scrotum was much enlarged; contained a considerable quantity of fluid; and bore very much the appearance of a hydrocele: but the upper part, or spermatic process, was hard, and painful, and seemed to be girt tight by the tendon of the abdominal muscle. This, added to an extreme tightness of his belly, want of stool for three days past, anxiety, restlessness, vomiting, and beginning hiccough, determined me to propose the operation immediately.

The lad consented, and I made an incision from the upper part of the tumor, just above the abdominal opening, quite down to the bottom of the scrotum.

Having carefully divided the cutis, and common membrane, I came to what appeared to be a hernial sac; this I opened, and thereby let out about half a pint of



clear limpid water; upon the discharge of which, the whole tumor of the scrotum subsided; and my assistants were convinced, that I had mistaken a hydrocele for an hernia. But although the whole of the swelling of the scrotum was entirely dissipated by the discharge; yet the tumor and hardness about the abdominal opening was unaltered, and the patient's pain the same. With a probe-pointed knife I laid open the whole sac, whence the water had proceeded, quite down to its bottom; and found the naked testicle within it: this gave the disease still more the appearance of a hydrocele, and I began to think that it was so; but, upon passing my finger up, to examine the state of the abdominal tendon, I found a small portion of intestine engaged in it, and bound extremely tight; I lengthened the incision, so as to have a fair view of it, and thereby we all became thoroughly satisfied of the true nature of the case. The piece of intestine was small, a good deal darkned in color, and bound so tightly by the tendon, that it was with great difficulty, that I could introduce my finger for the conveyance of the knife. When I had made a sufficient dilatation, I

endeavoured to return the gut ; but could not execute it, although there was no obstruction from the tendon. I drew out some inches of it, thinking, that I might thereby be enabled to make the return more easily ; that which I drew out, I replaced with the utmost ease ; but could not disengage the small portion which made the original disease. At last, passing my finger round in the dilated opening, I found that the intestine adhered to the lower border of it, by a small membranous filament ; upon the division of which, the gut slipped in immediately.

The young man had stools very soon ; and, by proper care, very soon got well.

This also was a congenial hernia ; the sac which contained the intestine, the fluid, and the testicle, being the tunica vaginalis : but had I been contented with merely dividing the tunic, and had not proceeded in the examination and division of the abdominal tendon, the lad would have been destroyed by the stricture.



## S E C T. XI.

**T**HE rest of the false herniæ (as they are called) are the pneumatocele ; the varicocele ; the cirfocele ; and the farcocele : to which, some have added the hydro-farcocele.

The first of these, is (as I have already said) a mistake : there is no hernia produced by mere wind. The two diseases, which in new-born children, and infants, are taken for, and called wind-ruptures, are, a tumor produced by a small quantity of fluid remaining in the lower part of the tunica vaginalis, after its communication above with the cavity of the belly is closed ; and a true (but small) intestinal hernia.

The varicocele ; is a dilatation of the blood-vessels of the scrotum. These are of different size, in different people ; and, like the vessels, in other parts of the body, are liable to become varicose ; but are seldom so much enlarged as to be troublesome, unless such enlargement is the consequence of a disease, either of the testicle, or of the spermatic chord. When this is the case ;  
the

the original disease is what engages our attention, and not this simple effect of it; and, therefore, considered abstractedly, the varicocele is a disease of no importance,

The cirsocele, is a varicose distention and enlargement of the spermatic vein; and, whether considered, on account of the pain which it sometimes occasions; or on account of a wasting of the testicle, which now and then follows it, may truly be called a disease. It is frequently mistaken for a descent of a small portion of omentum. The uneasiness which it occasions, is a dull kind of pain in the back, generally relieved by suspension of the scrotum. It has been resembled to a collection of earth-worms; but whoever has an idea of a varicose vessel, will not stand in need of an illustration by comparison. It is most frequently confined to that part of the spermatic process, which is below the opening in the abdominal tendon; and the vessels generally become rather larger, as they approach nearer to the testis. In books, are to be found prescriptions for lessening the distended veins; but I cannot say, that I ever saw any good effect, from external applications of any kind.



In general, the testicle is perfectly unconcerned in, and unaffected by this disease; but sometimes it happens, that it makes its appearance very suddenly, and with acute pain; requiring rest and ease: and sometimes, after such symptoms have been removed, I have seen the testicle so wasted, as hardly to be discernible.

## C A S E XXXVI.

A Young fellow, on a journey, found himself one evening more than ordinarily tired; and, as soon as he got to bed, was seized with a violent pain in his back; which (to use his own words) shot down into his stone.

The pain was so great, as to oblige him to send for somebody immediately, who bled him freely: this produced no relief, nor was the pain yet attended with any tumor of the scrotum, or testicle; or by any appearance whatever of the parts affected. The pain continued, without remission, all the next day; he was again let blood, had a clyster, and a gentle purge. On the third day, toward evening, the pain totally left him, and a fulness appeared in  
the

the groin, tending down toward the testicle : this made him so uneasy ; that, finding the apothecary, who had the care of him, did not seem clearly to know what it was ; he got into a post-chaise, and came home to London.

His journey brought on a return of pain : but by losing some more blood, keeping in bed, applying an emollient pultice to the groin, and suspending the parts in a bag-truss, he became easy, and all the tumefaction dispersed ; except a small fulness of the spermatic chord, occasioned by the varicose state of its vessels. But the testicle was so diminished, as to be hardly perceptible ; and remains so, to the time of my writing this.

#### C A S E XXXVII.

**A**N ostler, at an inn in Smithfield, was, by the fall of a horse, thrown over his head, and his groin struck against the pommel of the saddle. It gave him exquisite pain ; and he was brought immediately to the Hospital, upon a supposition that he had burst himself.

Upon



Upon examination, no swelling appeared, either of the testicle or of the spermatic chord; but the pain (which he said was exquisite) was confined to that part of the latter, which is between the testicle and the groin.

He was largely blooded, had a clyster, and a purge; his pain continued two days; and when it left him, the spermatic vessels became greatly varicose. No application, which was made use of on this account, proved at all beneficial; that is, rendered the distended vessels at all less; and, when he left the Hospital, he was perfectly free from pain; but his testicle, on that side, was scarce discernible.

I once saw the same effect, from the injudicious application of a truss, on a true cirsocele: the vessels, by means of the pressure, became enlarged to a prodigious size, but the testicle shrunk to almost nothing.

### C A S E XXXVIII.

**A** Young gentleman, about twenty-five years old, after having heated himself much with exercise, went too soon into a river  
to

to bathe. In the middle of the ensuing night, he was seized with a coldness, and shivering; which were followed with great heat, and thirst, and a slight sweat. He sent for a surgeon, who bled him and gave him a clyster, bad him keep in bed, and drink plentifully. Next day, he gave him a laxative medicine, and some febrifuge draughts.

For three days, his fever was unremitting; but on the fourth, he became cooler, and was seized with a most acute pain in his loins; for which he was again bled, and purged. On the fifth day, his back became easy; but both testicles, tho' very little swollen, were so tender, as hardly to admit the touch; and, in a very few hours, the spermatic vessels were so distended, as to make an apparent tumor. By means of fomentation, pultice, and rest, all uneasiness was removed, in about a fortnight; but, at the end of that time, both patient and surgeon were excessively astonished, at not being able to find the testicles. The latter came to London immediately, and desired me to examine him, after having given me the preceding account.

The



The spermatic vessels were full, and varicose; the vasa deferentia too large, and rather too hard; as were also the epididymides; but there was not, on either side, the least appearance of a natural testicle: a flattened, compressed kind of membranous substance (which, I suppose, was the tunica albuginea) seemed to hang from each epididymis; but there was not any trace or vestige, of the glandular, or vascular parts of either testis.

This is the only time, I ever saw this complaint on both sides, in the same subject.

## S E C T. XII.

### THE SARCOCELE, OR DISEASED TESTICLE.

**T**HIS is a disease of the body of the testicle; and, as the term implies, consists, in general, in such an alteration, made in the structure of it, as produces a resemblance to a hard fleshy substance, instead of that fine, soft, vascular texture, of which it is, in a natural and healthy state, composed.

The

The antient writers have made a great number of distinctions, of the different kinds of this disease, according to its different appearances, and according to the mildness or malignity of the symptoms, with which it may chance to be attended. Thus, the sarcocoele, the hydro-sarcocoele, the scirrhus, the cancer, the caro adnata ad testem, and the caro adnata ad vasa, which are really little more than descriptions of different states and circumstances of the same disease, are reckoned as so many different complaints, requiring a variety of treatment, and deriving their origin from a variety of different humors \*.

Every species of sarcocoele, consists primarily in an enlargement, induration, and obstruction of the vascular part of the testicle; but this alteration is, in different people, attended with such a variety of circumstances,

\* “Humores crassi sunt duo, pituita et melancholia,  
“e quibus tum schirrho in aliis partibus, tum indurationes  
“carneæ in testiculis oriuntur. Tumor hic est durus,  
“tactui renitens, indolens, et si exquisitus sit schirrhus,  
“sensu caret. Si a melancholia oriatur, color sublividus;  
“si a pituita, colorem cutis non mutat; si a melancholia  
“superassata, dolor punctorius, et inequalis tumor;  
“hic durus, ibi mollis,” Fab. ab Aquapend.



cumstances, as to produce several different appearances; and to occasion the many distinctions which have been made.

If the body of the testicle, though enlarged, and indurated to some degree, be perfectly equal in its surface, void of pain, has no appearance of fluid in its tunica vaginalis, and produces very little uneasiness, except what is occasioned by its mere weight, it is usually called a simple sarcocele, or an indolent scirrhus. If, at the same time that the testis is enlarged, and hardened, there be a palpable accumulation of fluid in the vaginal coat, the disease has by many been named a hydro-sarcocele. If the lower part of the spermatic vessels, and the epididymis were enlarged, hard, and knotty, they supposed it to be a fungous or morbid accretion, and called it the *caro adnata ad vasa*; if the testicle itself was unequal in its surface, but at the same time not painful, they distinguished it by the title of *caro adnata ad testem*: if it was tolerably equal, not very painful, nor frequently so, but at the same time hard and large, they gave it the appellation of an occult or benign cancer; if it was ulcerated, subject to frequent acute pain, to hæmorrhage,

morrhage, &c. it was known by that of a malignant or confirmed cancer. These different appearances, though distinguished by different titles, are really no more than so many stages (as it were) of the same kind of disease; and depend a great deal on several accidental circumstances; such as age, habit, manner of living, &c. It is true, that many people pass several years with this disease, under its most favourable appearances, and without encountering any of its worst; but on the other hand, there are many, who, in a very short space of time, run through all its stages. They, who are most conversant with it, know, how very convertible its mildest symptoms are, into its most dreadful ones; and how very short a space of time, often intervenes between the one and the other.

There is hardly any disease, affecting the human body, which is subject to more variety, than this is, both with regard to its first manner of appearance, and the changes which it may undergo.

Sometimes the first appearance is a mere, simple, enlargement, and induration of the body of the testicle; void of pain, without inequality of surface, and producing no un-



easiness, nor inconvenience, except what is occasioned by its mere weight. And some few people are so fortunate, to have it remain in this state, for a very considerable length of time, without visible or material alteration. On the other hand, it sometimes happens, that, very soon after its appearance, in this mild manner, it suddenly becomes unequal, and knotty; and is attended with very acute pains, darting up to the loins and back; but still remaining entire, that is, not bursting through the integuments. Sometimes the fury of the disease brooks no restraint; but, making its way through all the membranes which envelope the testicle, it either produces a large, foul, stinking, phagedenic ulcer with hard edges; or it thrusts forth a painful gleeting fungus, subject to frequent hæmorrhage.

Sometimes (as I have already observed) an accumulation of water is made in the tunica vaginalis, producing that mixed appearance, called the hydro-sarcocele.

Sometimes there is no fluid at all in the cavity of the tunica vaginalis; but the body of the testicle itself is formed into cells, containing either a turbid kind of water, a bloody sanies, or a purulent, foetid matter.

Some-

Sometimes the disorder seems to be merely local, that is, confined to the testicle, not proceeding from a tainted habit, nor accompanied with diseased viscera; the patient having all the general appearances, and circumstances of health, and deriving his local mischief from an external injury. At other times, a pallid, leaden countenance, indigestion, frequent nausea, cholic pains, sudden purgings, &c. sufficiently indicate a vitiated habit, and diseased viscera; which diseased viscera may also sometimes be discovered and felt.

The progress also, which it makes from the testis upward, toward the process, is very uncertain; the disease occupying the testicle only, without affecting the spermatic process, in some subjects, for a great length of time; while in others, it totally spoils the testicle very soon; and, almost as soon, seizes on the spermatic chord\*.

Q 3

These,

\* This is the common language, and therefore I use it; but I would not be understood to mean, that the progress of the disease, is always and invariably upward, from the testis into the process. I have seen the spermatic process truly cancerous, when the testicle has been free from disease; and am well satisfied, from experience, that a diseased state of the vessels within the abdomen,

men,



These, and some other circumstances, to be mentioned hereafter, are materially necessary to be observed; as they characterise the disease; point out its particular nature and disposition; and serve as marks, whereon to found our judgment and prognostic of the most probable event, as well as the most proper method of treatment. Various have been the causes, to which theoretic and whimsical people have assigned this disease; but as a recital of conjectures can convey no instruction, or useful information, I shall pass them over; and only take notice, that among the great number, which have been mentioned, there are two which, though equally groundless with the rest, have yet obtained a degree of credit, that may mislead: these two are the hernia humoralis, and the hydrocele of the vaginal tunic.

The hernia humoralis is a defluxion of the inflammatory kind, proceeding, most frequently, from an irritation in that part of the urethra, where the vasa deferentia,  
or

men, or of the parts in connection with those vessels, may produce a morbid state of the process, proceeding downwards from thence: but the other is by much the most frequent.

or vesiculæ feminales terminate. It is attended with pain and heat, and most frequently fever; during the first, or inflamed state of the disease, the whole compages of the testicle is enlarged; but when by rest, evacuation, and proper applications that inflammation is calmed, there seldom or never remains, either fulness, hardness, or any other mark of disease in the glandular part of the testis. The epididymis indeed seldom escapes so well; that often continues enlarged, and indurated, for a considerable space of time, but without producing either pain or inconvenience; and without occasioning any alteration in the figure or structure of what is called the body of the testicle; whereas the true sarcocoele, or hernia carnosæ, most commonly \* begins by an indolent induration of that part of the testis, and affects the epididymis secondarily; or, after it has already spoiled the vascular part of the gland.

I would not be understood to mean, that a sarcocoele never follows a hernia humoralis; there is no reason in nature, why it should not: a hernia humoralis does not,

Q 4 nor

\* I say most commonly, because it is neither necessarily, nor always.



nor can, prevent the testicle, in any future time, from becoming scirrhus: I only say, that it does not, at any time, necessarily cause, or produce it. So also, with regard to the epidydimis, I do not mean to say, that it never is the primary and original seat of a scirrhus; I know that it is, and shall produce some instances of it: neither do I intend to say, that a scirrhus never attacks an epidydimis, which has been previously hardened by a hernia humoralis; there can be no reason, why it should not: I only mean to signify, that it is my opinion, that the induration caused by a venereal hernia humoralis does not, at any time, necessarily produce a scirrhus. A scirrhus, indeed, may fall on that part, after it has been so diseased; but it would as certainly have attacked it, if there had been no preceding affection of it.

There is also a venereal affection of the testicle, independant of a gonorrhea, or of any disease of the urethra.

This is seldom an early symptom; and, I do not remember, ever to have seen an instance, in which it was not, either immediately preceded, or accompanied, by some other appearance, plainly venereal.

It

It has neither the inequality, nor darting pains of the scirrhus, and always gives way to a mercurial process, properly conducted.

A quantity of water is frequently collected, in the vaginal coat of a truly scirrhus testis. This has given rise to the supposition, that the testicle often becomes diseased, from its being surrounded by, or swimming in the same fluid : a supposition, entirely groundless.

That scirrhus, and cancerous testes, very frequently are found to have a quantity of fluid, accumulated in the tunica vaginalis of them, is beyond all doubt ; but that such testicles become diseased, in consequence of being surrounded by such fluid, or, in other words, that a simple hydrocele may produce a scirrhus testicle, is by no means true.

The simple hydrocele is (as I have already at large observed) a collection of water in the tunica vaginalis : this fluid, in a natural and healthy state of the parts, is small in quantity, and, by being constantly absorbed, does not distend the cavity of the tunic, but only serves to keep that membrane from contracting any unnatural cohesion



hesion with the tunica albuginea. The regular absorption of this fluid being by some means prevented, the quantity soon becomes considerable, and distending its containing bag, constitutes the disease called a hydrocele; but makes no morbid alteration in the structure of the testicle \*.

When the testicle becomes enlarged in size, hardened in texture, craggy and unequal in its surface, painful upon or after having been handled, attended with irregular pains, shooting up the groin toward the back, and this without any previous inflammation, disease, or injury from external violence, it is said to be affected with a scirrhus. This, as I have already remarked, is of different kinds, and degrees, and appears under different forms; but although the appearances, which the disease makes, are various, according to the alteration produced by it in the testicle, yet, every such morbid alteration may obstruct, or prevent the regular absorption of the fluid deposited in the vaginal tunic, and occasion

\* That is, no such alteration, as renders it painful, or incapable of executing its office; and, consequently, no such alteration, as can ever require extirpation, or any other chirurgical operation on the testicle itself.

casion a species of hydrocele ; that is, a tumor from water.

This is that kind of disease, which, by Fabritius ab Aquapendente, is called hydro-sarcocele ; but which is so very unlike to a simple hydrocele, that whoever mistakes the one for the other, will commit an error, which may prove very mischievous to his patient, and very detrimental to himself.

In the true, simple hydrocele, the testis, though somewhat loosened in its texture, and a little enlarged, yet preserves very nearly its natural form ; the collection is made without pain or uneasiness, and very soon becomes sufficient to hide, or conceal, the testicle ; nor is the examination of such tumor attended with any pain : but the increased size, and hardened state, of the scirrhus testis renders it discoverable, through a much larger quantity of fluid, than will totally conceal the former. When felt, it will be found to be hard, and generally somewhat unequal, and not unfrequently attended with irregular shooting pains, especially after having been examined.

In



In the simple hydrocele, the fluid distends the tunica vaginalis so equally, that, altho' it does not surround the testicle (nor indeed can) yet it seems so to do : whereas in the hydro-sarcocoele, tho' the anterior part of the tumor may, in some measure, bear the appearance of a simple hydrocele ; yet, an examination of its posterior part will always discover the true nature of the case \* : to which may be added, that, under the same apparent magnitude, the latter will always be found to be considerably heavier than the former.

In short, the name of this species of disease (hydro-sarcocoele) is, undoubtedly, a very proper one, and capable of conveying a very just idea of its true nature, *viz.* an accumulation, or collection of water in the vaginal coat of a scirrhus, or diseased testicle ; but the majority of writers have, by supposing the water to be the cause, instead

\* This has been very judiciously remarked by Mr. Le Dran. Schenkius gives an account of a beginning sarcocoele, which was mistaken for an hydrocele ; upon which a radical cure was performed by castration. Upon dividing the body of the testis, a quantity of thick fluid was discharged ; a thing by no means uncommon, but which was here mistaken for semen. The patient died,  
not

stead of the consequence of the diseased state of the testis, committed a very material blunder, and endeavoured to establish, and authorize a very prejudicial and destructive method of practice. For by conceiving, that the noxious quality of the fluid produces a fungous or fleshy excrescence on the surface of the testicle, they have supposed, that after having discharged the said fluid from its containing bag, they could, either by establishing a suppuration, or by using escharotic medicines, waste or destroy the said excrescence, and obtain a radical cure of the whole disease. Now the scirrhusity of the testicle being the original disease and the extravasation a mere accident, such treatment can never do any material good, and may often be the cause of very essential evil.

Fabritius ab Aquapendente has given a particular description of this method, which  
he

not long after the wound was healed ; and the kidney on that side, and the parts about it, made a very morbid appearance. This appearance was by Schenkus supposed to be owing to the hasty cure of the hydrocele ; but was indeed the effect of the same virus which had first spoiled the testicle. Neither was the fluid in the body of it semen, but sanies or matter ; a circumstance most frequently met with in scirrhus testes.



he recommends, from having practised it with success ; his words are “ *Modus singularis est quando hernia aquosa cum carnosa mista est ; tunc enim primum incide, et fac foramen in parte scroti quæ non sit declivis, neque in fundo scroti, sed circa medium ; nec fac admodum latum : et extracta aqua, turundam impone quam longissimam, medicamento, pus moventi infectam, ut resina terebinthinæ, cum thure, ovi vitello, et butyro ; emplastrum emolliens, et pus movens applica, ut diachylon cum gummis, et axungia porci : genitum autem pus, non evacuetur per foramen, sed data opera intus servetur, ut contactu suo, carnem sensim putrefaciat. Neque innovanda medicamenta, nisi tota caro fuerit in pus conversa ; id quod longo fit tempore \*.*”

Now, to pass over the absurdity of the doctrine of removing or dissolving a fungous

\* “ Si carnosa, et aquosa sit hernia, ego talem adhibeo curam ; feco cutem, et incisionem facio exiguam et in loco potius altiore, quam in fundo : inde turunda imposita cum digestivo et pus movente medicamento diutius procedo, neque unquam pus extraho, sed perpetuo bonam partem intus relinquo ; quod sensim carnem corrodit, et ita sanat.”

gous excrescence, by means of the putrefying quality of matter ; as well as the great disturbance, which must be the consequence of confining it within the tunica vaginalis ; it is very clear from these, and from every other circumstance attending the disease in question, that the cases, which Fabritius had successfully made his experiment upon, must have been mere simple hydroceles, attended with a small degree of enlargement ; but without any diseased state of the testicle.

This is one method of procuring a radical cure of the said disease : a method in use, before Fabritius practised it ; and still, in some measure, employed : a method, which, in some instances, has always been successful ; and which may, in general, be tried on any simple hydrocele, in a young and healthy subject. The cure (when it effects one) is not brought about by the destruction of an excrescence from the testicle, or the dissolution of its supposed induration ; but merely by exciting such an inflammation, as shall occasion an adhesion of the tunica vaginalis to the tunica albuginea ; by which means, the cavity of the former is obliterated : the testicle remaining,



maining, as to size and consistence, just as it was before such operation was performed\*. But this, though practicable, and sometimes successful in the hydrocele, is not to be thought of, in the diseased or scirrhus testicle. The operation, as described by Aquapendente, consists of two points; first to let out the water, and then to cause a plentiful suppuration. When the testicle is really and primarily diseased, and the extravasation is a consequence of such disease, the discharge of the water from the cavity of the tunica vaginalis, whether by puncture, or by incision, can contribute nothing material toward a cure of

\* Another method of treating this disease, in use before Fabritius ab Aquapendente (as may be seen in Guido and others) and much preferable, if used in proper cases, is the method by seton.

This, as I have already observed, I have several times practised with success, in those who would not submit to incision, or in whom it was by no means proper.

Fabritius ab Aquapendente had a different, and that an erroneous, idea of this disease; he conceived, that there was a fungous kind of excrescence on the testicle, and that this excrescence required erosion and destruction; this he aimed at accomplishing, by means of the matter collected within; and therefore his principal aim was to confine and increase it, by making his puncture, for the introduction of his tent, in the upper part of the tu-

mor;

of the principal complaint, and is therefore useless ; but it may, in many cases, do harm, by creating a disturbance in parts, whose state requires the most perfect quietude ; and is therefore wrong. When the disease is a mere, simple hydrocele, the palliative cure, as it is called, by puncture, is right and necessary ; it renders the life of the patient easy ; rids him, every now and then, of a very troublesome burden ; is perfectly safe ; may be performed, and repeated occasionally, at any time of the patient's life, or in almost any state of the disease ; but the introduction of tents or setons, or the endeavour, by any means to excite inflammation, or to establish suppuration

within  
most ; and by imbuing it, from time to time, medicamentis pus moventibus.

Had he been right in his idea, his practice would have been just : but his conception of the disease was erroneous, and his practice absurd. The rational intention should be, to excite such a degree of inflammation, as may produce an union between the tunica vaginalis and the albuginea : the formation of matter is a mere accidental consequence of this inflammation ; and the means used to procure the end (provided it be procured) cannot be too gentle. The matter is of no real use, and therefore it is so far from being necessary to confine it, that if the conjunction of the coats can be obtained, without the formation of any, it is so much the better.



within the tunica vaginalis, requires (even in the simple hydrocele, where the testicle is unaffected) some little consideration, and ought not to be hastily, or unadvisedly, put in practice.

In some ages, habits, &c. the symptoms will rise very high, and occasion both trouble and hazard ; and if this be the case, when the testis is not at all diseased ; and when there is no malignity, either in the local complaint, or in the habit of the patient, what have we not to fear where there is both ; where the parts are already spoiled by disease, and where irritation and inflammation, may (and do) excite the most fatiguing symptoms, and the most direful consequences ?

Beside the hydro-sarcocoele, or limpid extravasation of fluid, in the cavity of the vaginal coat, (and which must therefore always be external to the testicle) scirrhus and cancerous testes are liable to collections of fluid, within the substance of them, under the tunica albuginea \*. These are sometimes large,

\* Job a Meekren has made a very just, and judicious remark on this subject. Fabritius ab Aquapendente had reckoned a collection of fluid within the tunica albuginea testis, among the kinds of hydrocele. This Meekren does

large, and in one cavity ; sometimes small, and in several distinct ones. They are also very different in nature, in different cases ; sometimes serous, sometimes sanious ; sometimes purulent, sometimes bloody. These are very apt to impose on the inadvertent and injudicious ; (especially if they be attended with some degree of inflammation in the skin ; ) and to induce an opinion of an abscess, or imposthumation, which may be relieved, or cured, by an opening ; but, caveat operator. These collections will be found to bear a much smaller proportion to the general size of the tumor, than they who are not conversant with them are inclined to apprehend : the subsidence after the opening has been made, will also be much smaller than was expected ; and, instead of relief and ease, all the symptoms

R 2

of

does not allow : but, having described the true hydrocele of the vaginal coat, speaks of this collection within the albuginea, as it really is ; that is, as a consequence of the diseased state of the gland. His words are : “ Hieronymus Fabritius ab Aquapendente, Part. I. de  
“ Operat. Chirurg. cap. 75. aquam in testibus congregari docet eam quæ ex imo ventre eo defluit : at error est (meo judicio) magni anatomici. Spatio enim  
“ eo, quod est inter testiculum et tunicam, imo in scroto ipso, aqua sæpius colligitur : *nunquam in testibus  
“ ipsis, nisi putrescant.*”



of pain, swelling, inflammation, &c. will be increased, and aggravated; and if the opening be considerable, it not infrequently happens, that an ill-natured fungus is thrust forth; which, by bleeding, gleeing, and being horridly painful, disappoints the surgeon, and renders the state of the patient much more deplorable than it was before: neither is this sensation, which is thought like the fluctuation of a fluid within the testicle, to be at all times depended upon, as implying, that there is any fluid at all there. The touch, in this case, is subject to great deception; and I have seen a loosened texture of the whole vascular structure, or body of the testicle, produce a sensation, so like to the fluctuation of a fluid, lying deep, as has imposed on persons of good judgment, and great caution.

Many of the most esteemed writers on this part of surgery, either not being practitioners, or being afraid to differ from those who have written before them, have lazily and servilely copied each other, and have thereby fallen into an obscure jargon concerning this disease, which, neither themselves, nor their readers, have understood. They have talked of the scirrhus testicle,  
the

the caro adnata ad testem, and the caro adnata ad spermatica vasa, as so many different diseases, requiring different methods of treatment.

The melancholia, the atrabilis, and a certain inexplicable adust state of humors, are said to be the causes of these different appearances; and the fleshy substance arising from, or adhering to, the spermatic vessels, is said to be more benign, than either the fungus arising from the testicle, or the true scirrhus. For the first, they have described an operation, which is coarse, cruel, painful, and (notwithstanding all that they have said about it) unsuccessful; all which they must have known, if they had *practised* it. I, therefore, am much inclined to believe, that this is one of the many parts of antient surgery, which having been devised by some one bold, hardy operator, and by him described, as practicable, has been related by many of his successors, as practised. The second, the caro adnata ad testem, they allow to be attended with more difficulty, as well as hazard, and seldom to be attempted with success \*.

R. 3

They,

\* “Ranex hæc inter excrescentias annumerari potest, cum sit additamentum ex toto præternaturale;

nec



They, who are under a necessity of forming their opinions principally from books, and who have not frequent opportunities of knowing from experience, how very little they are (in many cases) to be depended upon, may be inclined to think, that all these distinctions really exist; and that these operations by fire and sword, by knives and cauteries, so exactly described, must be sometimes necessary; but having never seen the particular cases, requiring such

“nec illi insunt signa apostematis, sed tantum ut caro  
“quæ circa scrotum aut epididymem generari solet.”

Andreas a Cruce.

“Curatio ejus est, ut incidatur cutis testiculorum,  
“et excorietur usque ad superiora; deinde extrahe di-  
“dymum et testiculum, et libera eos ab omni parte  
“ex illa carnositate.” Brunus.

“Fit etiam hernia quandoque ex carnositate quadam  
“præter naturam nascente juxta testiculum; et tunc  
“pellicula incisa undique debet excoriari; et disco-  
“perta carnositate illa a corio exteriori usque, supe-  
“rius *cauterio* abscindatur.” Rolandus.

“Cura ejus non potest fieri nisi cum manu pellem  
“exteriolem scindendo, et carnem a testiculis scar-  
“nando. et incarnatum auferendo.” Lanfranc.

“Scinde pellem testiculi cum rasorio usque ad testi-  
“culum, et tunc carnositatem, quam invenis removeas  
“et excarnes totaliter a testiculo.” Gul. e Saliceto.

“Notandum est in hac operatione num caro con-  
“creverit circa tunicas; an circa ipsos testes; numque  
“firmiter

such treatment, have a very imperfect idea, either of them, or of the operations; and are, to the last degree, alarmed and intimidated, when any thing, which they think is like to it, occurs to them in practice. To such, it may not be amiss, to explain this matter, in as few words as I can; begging pardon of the more intelligent reader for the digression.

In the short anatomical account, which I have given of these parts, I have taken

R 4

no

“ firmiter an minus firme adhereat partis substantiæ.

“ Incidendum est totum scrotum usque ad carnem con-

“ cretam, quæ si quidem valenter haud sit affixa, vel

“ summis digitis, vel manubriolo scalpente, a teste vel

“ tunicis, sensum fit auferenda,” Fab. ab Aquapend.

“ Caro item sæpissime testiculis, ut eorum tunicis ad-

“ nascitur, serofus enim humor iste nonnunquam acris

“ factus venas capillares, membranasque leviter erodit.

“ Hinc pars illa sanguinis quæ paulatim exsudat: quæ-

“ que optima et laudabilis est, beneficio caloris innati,

“ in carneam substantiam concrescit, &c. reliquum

“ vero sanguinis quod serofum est, paulatim membra-

“ nas totumque scrotum adeo extendit, ut caro ista

“ quæ testiculo adheret, digitis palpari non possit.”

Fabritius Hildanus.

“ Secandum est scrotum, et detegenda caro, et a

“ teste deradenda vel a vasis, &c.” Gab. Fallopius.

The false reasoning, the want of anatomical knowledge, the cruelty, and inutility, of the proposed operations, and the terrible consequences, which must follow  
from



notice, that the spermatic vessels terminate in the testicle: and that, after the semen has been secreted from the blood, it passes from that gland, into a body which seems superadded to, although it be really continuous with it. This body is therefore called the epididymis, and is so placed, with regard to the testis, that a heedless or uninformed observer may suppose, that the spermatic vessels terminate in it; especially, if it be enlarged by disease. It takes its rise from the testicle, by a number of vessels, called, from their office, *vasa efferentia*;

from their being put in practice, are too glaring to need any comment: and such as must incline every reasonable man, to hope that these authors (and a great multitude of others, who might be named) did in this part of surgery, as they have done in many other; that is, copy each other in the precepts relative to the cause and treatment of this disease, but did not put their directions often into practice. The imperfect state of anatomy, in the time of the above-cited writers, may be admitted as an excuse for them; but even very late ones have fallen into the same error.

“ In the fungous excrescence upon the testis, when the same is not over-grown, you are to make way thereto; which is then to be consumed, by escharotics or by the actual cautery.” Turner.

“ Si quid vero carnis enatum a testiculo deprehenditur, quod graviter hominem affligat, nec discuti ta-

“ men

rentia : these soon become one tube, which being convoluted and contorted, in a most wonderful manner forms the greater part of the said body ; and at last, ceasing to be so convoluted, it ends in one firm canal, called the vas deferens ; by which, the secreted semen is conveyed from the testicle to the vesiculæ seminales.

Whoever will attentively consider the epididymis in its natural position, with regard to the testicle, and spermatic vessels, will see, that if it be enlarged, beyond its proper size, it will extend itself upward, in

“ men per adhibita medicamenta convenientia queat,  
 “ tum si testiculus integer adhuc est, atque illibatus, fe-  
 “ liciter ut plurimum sanari noxa poterit, ipseque testi-  
 “ culus servari ; dummodo quicquid præter naturam  
 “ super increvit, *deoperto scroto*, quam exactissime ab eo  
 “ solvatur, atque rescindatur.”

“ Quod si autem ipsum testiculum invaserit ; vel ex-  
 “ scindi etiam propter nimios cruciatus, vel similes ali-  
 “ as causas, indecore prominentes partes nequeant, ne-  
 “ cessarium utique erit, vel universum testiculum, *vel*  
 “ *quandam saltem ejus partem*, modo jam proposito ex-  
 “ scindere.” Heister.

To set aside the strange distinction between the  
 “ caro enata a testiculo,” and that “ quæ ipsum testi-  
 “ culum invaserit,” (a distinction taken from books only) I believe, I may venture to say, that the Professor never found, that the operations, which he describes and advises, were attended with success ; and, I hope that he has not often seen them performed.



in such a manner, as to seem to be closely connected with them, and to bear the resemblance of a diseased body, springing from them.

This is the case, called the *caro adnata ad vasa spermatica* ; and is really and truly nothing more, than an enlargement of the epididymis : a circumstance, which occurs not infrequently ; but does not imply any malignity, either in the part or in the patient's habit ; and can never require such a horrid operation, as our forefathers have directed us to perform upon it : nor, indeed, any at all.

The epididymis is frequently enlarged ; in venereal cases, either separately, as in the remains of a *hernia humoralis* ; or together with the testicle, in that affection of it, which I have called the venereal *farcocele* ; and sometimes from mere relaxation of its natural texture, without any disease at all. But in none of these can it require, or even admit, any manual operation of any kind. Indeed, whoever will consider the epididymis, as it really is, as the medium by, and through which the semen is conveyed from the testicle to the *vas deferens*, must immediately be sensible of the

glar

glaring absurdity, of removing any part of it.

The scirrhus and cancer do not very often begin in this part ; they most frequently make the first attack, on the body of the testis : and, though the epididymis is often cancerous, yet, it most frequently becomes so secondarily, or after the testicle is spoiled : so that the removal of it, if practicable, could serve no good purpose : it would not remove the disease ; for that has, before-hand, most commonly taken possession of the testicle ; and the cutting off any part of a scirrhus or cancerous tumor of any kind, is what no man, who has the least knowledge of what he is about, will ever think of.

In short, these two cases, which, by the inattention and misrepresentation of our ancestors, have created such perplexity in the minds of their readers, are either a simple enlargement of the epididymis, without any morbid alteration in its structure ; or a diseased (that is scirrhus) state of the same part ; or else, a scirrhus or cancerous testicle, with inequality of surface. The first of these requires no manual operation of any kind ; and the two last will  
ad-



admit of none: the first is no disease at all; and the two last are such diseases, that every attempt made on them, by knife or caustic (unless for total extirpation) must render them worse, and more intractable.

The manner of treating a sarcocoele, or hernia carnosæ, depends entirely on the particular nature and state of each individual case. In some, it will admit of palliation only; in others, the disease may be eradicated, by the extirpation of the part: so that under the article of method of cure, we have only to consider, and point out, as clearly as the nature of the disease will permit, what states and circumstances, both of it, and of the patient labouring under it, forbid the operation, and what render it advisable.

On this head, great variety of opinions will be found among writers; so great that a man, who is under a necessity of forming his judgment from them, will find himself under some difficulty how to act: and so great, that I cannot help thinking it to be clear, that the majority have not written from practice, but from mere conjecture, or from the works of those who have gone before them.

Some have given it, as their opinion, that while the testicle is perfectly indolent (let the alteration in its structure, form, or consistence be what it may) it is better to suffer it to remain, than to remove it. In support of this opinion, they say, that although the disease has plainly taken possession of the part, yet, while it causes no pain, the constitution receives no damage from it; nor is the health of the patient impaired by it; whereas, by removing the testicle, the same virus may seize on some part of more consequence to life. This method of reasoning takes for granted, two things, which do not appear to be strictly or constantly true; *viz.* that this disease is never perfectly local; and that a scirrhus testicle, though free from pain, will not in time produce any evil to the general habit of the patient. Others advise us to stay, until the tumor becomes painful, and manifestly increases in size, or acquires a sensible inequality of surface; that is (in other words) until it begins to alter from a quiet state, to a malign one: which advice, as well as the preceding, supposes, that the hazard of the mere operation of castration is too great to render it an adviseable thing, until



until the patient is pressed by bad symptoms ; and that a scirrhus testicle, which has been quiet, and free from pain for some time, may be as successfully extirpated, after it has become painful, and has acquired a malignant and threatening state, as at any time before such alteration. The latter of these will hardly be admitted (I believe) by those, who form their opinions from experience ; and with regard to the former, I can, with great truth, affirm, that I never saw the mere operation of castration, when performed in time, and on a proper subject, prove fatal.

Many people have I known, who have lived several years, their whole lives, perfectly free from disease, after the removal of quiet, indolent, scirrhus testicles ; and several have I known, who having deferred the operation, until they were urged by pain, increase of size, and inequality of the tumor, have, from the sore becoming cancerous, not been able to obtain a cure : that I have seen the same thing happen, after the removal of a testicle, circumstanced in the best manner, is beyond all doubt ; but not near so frequently, as in those cases, in which the operation has  
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been deferred, until the symptoms became alarming, and the disease had changed its appearance, from a benign quiet one, to one that was malign and painful. Indeed, were we capable of knowing, with certainty, which those scirrhi were, that would remain quiet and inoffensive through life, or for a great length of time, and which would not ; we should then be enabled, to advise or dissuade the operation, upon much better (that is much surer) grounds, than at present we are able to do. We have no such degree of knowledge ; all our judgment is formed upon the mere recollection of what has happened to others, in nearly similar circumstances ; and experience, tho' the best general guide, is, in these cases, more fallacious than in many others.

A few people there certainly have been, who have been so fortunate to carry a scirrhus testicle through many years, with little or no pain or trouble : but the number of those, in whom time (and that frequently a short space) change of constitution, external accidental injury, &c. do not make such an alteration in this disease, as to render the operation less likely to be successful, than it would have been at first,  
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and, under more favourable circumstances, is so small, that I think early castration (that is, as soon as the disease is fairly formed and characterised) may be recommended and practised by every honest and judicious surgeon\*.

Indeed,

\* Scirrhus and cancerous tumors are found in many parts of the body, as well as in the testicle ; and in all others, as well as in that, bear different characters ; that is, shew a greater or less disposition to malignity ; remaining sometimes of small size, and easy for many years ; at others, increasing fast, and so producing great pain, and all its bad consequences.

Of all the kinds of this disease, those which follow upon some external violence (such as blow, bruise, &c.) are thought, and said to be, the least ; therefore, great regard has always been paid to this distinction by writers, and great hopes conceived from this circumstance by patients. I wish I could say, that such hopes were always as well founded, as they are thought to be : I mean, that experience most frequently verified them.

When a scirrhus seizes a part, that has previously sustained an injury from without, such probable cause is, undoubtedly, a favorable circumstance : but it does not, by any means, necessarily follow from thence, that the constitution of such person is free from taint. It is a presumption, but not a proof : and this presumption becomes more reasonable, if the diseased state of the part follows such accidental injury soon, than if it appears at a great distance of time.

No man will pretend to say, that such mischief has not been done by outward violence, that cancerous disorders  
have

Indeed, the circumstances of frequent pain, and a manifest tendency to an increase of size, are by some people looked on, as such marks of a malignant disposition, that they have been, by them, reckoned as dissuaves from the operation.

But

have not followed, in the parts so injured, in persons, who, before such accident, never had any appearance of such disorder; and who possibly might have lived many years, nay their whole life, without its appearing in such form and manner: but that, previous to such accident, there was no cancerous disposition, or malignity in the habit, is an inference which cannot be admitted.

What disorders of the joints do we see, produced by very slight injuries done to them? disorders which are clearly and plainly scrophulous, and which would not have appeared at that time, or in that part, had it not been for such accident: but surely no man will from thence conclude, that such people have no scrophulous taint in their blood, or glands, previous to such strain or bruise. How many internal parts are there for this disease, as well as some others, to make its attack upon; but which, by being out of sight, and not deemed objects of surgery, are not known; and pass either for other diseases, or for the symptoms of other diseases? what tumors of the lumbar glands and mesentery; what obstructions in all parts of the contents, both of the abdomen and thorax, do we not find, upon examining the dead, whose disorders were very little known or understood while they were living; but whose prevailing indisposition, whose natural dyscrasia, would, most probably,



But these gentlemen carry their fears and apprehensions, much too far the other way. Pain, and a quick increase of size, are certainly no favorable symptoms : they shew

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have shewn itself in some more visible part, if such part had accidentally suffered from external violence?

All that we from experience know, and therefore all that we ought honestly to say on this occasion, is, that it has very often happened, that where that kind of disorder, which produces scirrhus or cancerous tumors, has been brought into action, by external injury (whether it be in the breast, testicle, or any other part, it matters not;) or when such kind of disease has seized such part, no preceding violence having been offered to it; and has therein occasioned a fixed, but indolent kind of swelling, which has either remained a long time of one size and state; or if it has altered, has altered very slowly, and given the patient but little uneasiness; if such tumor has been so situated and circumstanced, that it could safely be extirpated, or removed, that such removal, or extirpation, has often cured the present evil; and that the patient has remained free from any thing of like sort, during his or her life.

This is true, and therefore is, and ever will be, a sufficient reason, for pressing such operation, when all other circumstances are favorable: that the patient may keep well after it, is by no means improbable; that the scirrhus would remain, through life, indolent and inoffensive, is very improbable. But whoever boldly asserts, that such extirpation will always and certainly cure the disease, is very inexperienced, or is wilfully guilty of a deception (the two distinguishing marks of a quack, who always promises, what he either does not know, or does not believe.)

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a disposition to mischief ; but they are not such positive proofs of a cancerous habit, as to render all hope of a cure, from the removal of the diseased part, vain ; there are

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When a scirrhus or cancer is favorably circumstanced, and so situated, as that it may be extirpated, such extirpation is indeed the only remedy ; and that method by which such extirpation can be most certainly and expeditiously executed, is, beyond all doubt, the best.

The two in use, are the knife and the caustic. The former, in the hand of a surgeon, who is an anatomist, has every advantage which can be desired or supposed : it gives less pain, is more secure, and more expeditious ; but it impresses on the patient, the apprehension of an operation, and the fear of an hæmorrhage. The use of caustic is infinitely more painful, not only in immediate sensation, but in duration ; it often requires repetition ; it is less manageable, less secure ; and the great length of time, which the separation of the mortified parts sometimes take up, renders it very tedious. But it is attended with two circumstances, which have greatly contributed to the support of cancer quackery : one is, that it spares the patient, the horror of an operation ; which, though infinitely less painful than the effect of the caustic, is not believed to be so : the other is, that the ragged appearance, which the bottom and sides of the parts make, after having been removed by such application, is so unlike to the smoothness of that, which has been removed by incision, that ignorant people are easily induced to believe, what the designing always tells them, *viz.* that the medicine has taken their disease out by the roots ; and that the ragged parts, which they see, are such roots.



many instances to the contrary ; and though no honest, or judicious man, will venture to promise success, even in the most favorable of these cases, yet it is well known, that

It is amazing, what weight this single circumstance has with many, and even with some sensible people ; few of whom are persuaded to believe, what is as true, as any proposition in Euclid, *viz.* that a caustic of equal strength, applied on any glandular part of any person will always produce exactly the same effect, and appearance, as, in this case, passes with them for the roots or branches of the disease.

When nurses and quacks talk of the fibrous roots of a cancer, and of cancerous fermentations, they are excusable ; the one from their ignorance, the other from the nature of their trade ; but when they, who pretend to some kind of medical knowledge, use this kind of language, it is shameful.

If either the fears of the patient, or the particular circumstances of the part to be removed, render the use of caustic preferable, or necessary, every practitioner is well acquainted with those which are perfectly efficacious ; but every practitioner also knows, that good reasons, for preferring the use of them to the knife, very seldom occur : it is in this, as in the attempts towards a radical cure for ruptures, and some other parts of surgery, we are censured where we ought to be applauded, and blamed for those very things, from whence we ought to derive praise. We have laid aside certain methods and processes, because we found them (upon experience) to be painful, hazardous, and ineffectual : and these very methods, destructive and fallible as they are, have given credit

that they, which have had very unpromising appearances, not only from the state of the testicle, but from that of the spermatic chord, have succeeded often enough, to

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make

credit and honor to those, who have had ignorance and inhumanity enough to revive them.

We are not yet so happy, as to be possessed of any medicine, which will cure a cancerous habit : when the constitution is thoroughly infected, neither our knives or caustics will avail ; they can only remove the local mischief, but can have no effect on the general one in the constitution. Whoever says otherwise, says what is not true ; and whoever believes otherwise, is imposed upon. When the habit is concerned, as it too frequently is, it must be an internal remedy that proves a specific, whenever we are so happy as to be blessed with the discovery. The supposition, that an escharotic can, by destroying a particular part, eradicate the disease from the habit, is (one would be inclined to suppose) too gross an absurdity, for the most credulous believer to swallow ; and yet, it is believed, and trusted to every day. Indeed, it sometimes happens, in the treatment of these cases, that either the arrival of puberty, a favourable turn in a constitution, or the renewal of long obstructed evacuations (especially uterine ones) shall restore the patient to a better state of health, and prevent either the farther progress of the disorder, or any new appearance of it in any other place. In this case, if the extirpation was made by an external application, and not by an instrument, such application is thought to have wrought the cure, and has all the credit of doing, what it really had no share in then, what it never can do, nor have the appearance of doing again, but in the like accidental circumstances.



make the chance of a cure, by the operation, by no means a desperate one. The state of a man left to his fate, in these circumstances, that is, to the fury and progress of the disease, is so truly miserable, that nothing should be left unattempted, which carries with it any probability of being serviceable ; and a practitioner is vindicable, in pressing what he has known to be successful ; though, at the same time, he ought to make a guarded kind of prognostic.

Upon the whole, I think it may justly be said, that the man, who has the misfortune to be afflicted with a truly scirrhus testicle, has very little chance (notwithstanding all that has been said and written about specifics) to get rid of it by any means, but by extirpation : and all the time the operation is deferred, he carries about him a part, not only useless and burthenfome, but which is every day liable, from many circumstances (both external and internal) to become worse, and more unfit for such operation.

While the testicle is small, and free from acute or frequent pain, the vessels, from which it is dependent, are most frequently

quently soft, and free from disease ; whereas, when the testis has been suffered to attain a considerable size, the case is frequently otherwise : the spermatic vessels are often large and varicose ; and the cellular membrane investing them, sometimes becomes thick, and contracts such connections and adhesions ; which, though they may not amount to an absolute prohibition of the operation, do yet render it tedious, troublesome, and more hazardous than it would be in other circumstances. Every addition to the original complaint in the body of the gland, is against the patient ; and if any of these are the consequence of not having removed it in time, it will follow, that the sooner it is removed, the better. If we wait, for what some call indications of the necessity of operating, we shall often stay, until it will do no good. Many a one have I seen lose a very probable chance of a cure by delay : but I do not remember, ever to have seen a testicle removed, by a man of judgment, which testicle did not, upon examination, fully vindicate the extirpation. If we were possessed of any medicine, either external or internal, which had been known now and then



to have dissolved scirrhi, it would always be right, to recommend the trial of them previous to an operation ; and it would always be right, to defer operating, until such trial had been made. But the truth is, we know no such medicine. The credulous on the one hand, and the designing on the other, have told us many strange stories of cures effected, by such applications and remedies ; and I do most sincerely wish, that what each of them have said was true : but repeated, faithful experience has proved that it is not ; and that they, who have placed their confidence in them, or laid out their money on them, have been disappointed and cheated.

Some circumstances there are, now and then attending this disease, which are out of our sight, and out of our knowledge, and which will render all our pains abortive ; such are tubercles, indurations, and other diseased appearances in the cellular membrane enveloping the spermatic vessels within the abdomen ; scirrhus viscera, &c. If any of these can be known, they constitute a good reason, for not attempting the cure by the operation ; but the mere possibility, that such may exist, is cer-

certainly no reason for abstaining from it : the apparent evil, that is the diseased testis, is certain, the other may or may not be the case; the one, if left to itself, is most likely to destroy the patient in a most miserable and tedious manner, and the other, the suspected mischief, may possibly not exist.

But though the timely and proper removal of a scirrhous or cancerous testicle, does frequently secure to the patient life, health, and ease, which, in such circumstances, are not attainable by any other means; yet it must be remarked, that the improper or untimely performance of the operation, is not only not attended with such happy and salutary event, but generally brings on high symptoms, and quick destruction. It, therefore, behoves every practitioner, to be perfectly well acquainted, not only with such circumstances as render castration practicable and adviseable, but with those which prohibit such attempt.

These are of two kinds, and relate either to the general habit of the patient, and the disorders and indispositions of some of the viscera, or to the state of the testicle, and spermatic chord.



A pale, fallow complexion, in those who used to look otherwise ; a wan countenance and loss of appetite and flesh, without any acute disorder ; a fever of the hectic kind ; and frequent pains in the back and bowels, are, in those, who are afflicted with a scirrhous testicle, such circumstances as would induce a suspicion of some latent mischief, and incline one to suppose, that the same kind of virus, which had apparently spoiled the testis, may also have exerted its malign influence on some of the viscera : in which case, success from the mere removal of the testicle is not to be expected. They, whose constitutions are spoiled by debauchery and intemperance, previous to their being attacked with this disease, who have hard livers, and anasarcaous limbs, are not proper subjects for such an operation. Hard tumors within the abdomen in the regions of the liver, spleen, kidneys, or mesentery, implying a diseased state of the said viscera, are very material objections to the removal of the local evil in the scrotum. In short, whenever there are manifest appearances, or symptoms of a truly diseased state of any of the principal viscera, the success of the operation becomes very doubtful ; more  
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especially, if such symptoms and appearances, upon being properly treated, resist in such manner, as to make it most probable, that a cancerous virus is the real cause of them. When none of these require our attention, the object of consideration is the testicle and its spermatic vessels. The state of the mere testis can hardly ever be any objection to the operation ; the sole consideration is the spermatic chord : if this be in a natural state, and free from disease, the operation not only may, but ought to be, performed, let the condition of the testicle be what it may : if the spermatic chord be really diseased, the operation ought not to be attempted. For although, on the one hand, a probability of success will vindicate an attempt, even though it should fail ; yet, on the other, where there is no such probability, an operation, tho' performed in the most dextrous manner, will prove only a more ingenious method of tormenting.

This therefore (the state of the spermatic chord) is a matter, which may require our most serious consideration ; since, on this it is (when the disease appears to be local) that we must found our judgment ;  
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and by this must form our resolution, either to leave a man to the truly miserable fate of being slowly, though certainly, destroyed, by a cruelly painful, and frequently very offensive disease ; or endeavour to save, and preserve him in health and ease, by means which have so often proved successful, as truly to deserve the appellation of *probable*.

All writers on this subject agree, in saying, that if the spermatic process has partaken of the diseased state of the testicle, that is, has become enlarged, and hardened and such enlargement and induration extends itself quite up to the abdominal muscle, that the operation of castration ought not to be performed, because it not only will prove unsuccessful, but will hasten the death of the patient. And this is, in some degree, most certainly true ; but not without some limitation. A truly and absolutely diseased state of the spermatic chord in any part of it, is certainly a very material objection to the operation, as it most commonly proves a bar to the success of it : and a morbid state of the same chord, quite as high as the abdominal muscle, that is, of all that part of it, which is external to  
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the cavity of the belly, is a just and full prohibition against such attempt. But on the other hand, it must be observed, that every apparently morbid alteration of the spermatic chord, is not really such ; and therefore, that every enlargement, induration, fulness, &c. which seems to alter the spermatic vessels from that state which is called a healthy and natural one, is not to be regarded as a disease ; at least, not as such a disease as is sufficient to prohibit the attempt to obtain a cure by extirpation. The difference between these, it is the duty of every practitioner to become perfectly acquainted with, as it is from a consideration of these, that he ought to determine, whether he may, with that firmness and assurance, which the probable expectation of success will give him, propose and advise castration ; or find himself obliged in conscience, to dissuade, or refuse, the performance of it.

When the spermatic vessels are not only turgid and full, but firm and hard, when the membrane, which invests and connects them, has lost its natural softness and cellular texture, and has contracted such a state, and such adhesions, as not only greatly  
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to exceed its natural size, but to become unequal, knotty, and painful upon being handled, and this state has possessed all that part of the chord, which is between the opening in the oblique muscle and the testicle, no prudent, judicious, or humane man will attempt the operation; because he will, most certainly, not only do no good to his patient, but will bring on such symptoms, as will most rapidly, as well as painfully destroy him. Of this, there are so many proofs, that the truth of it is incontestible.

In some modern French books, we have indeed, miraculous accounts of operations of this kind, performed by dividing the tendon of the oblique muscle, by tracing the diseased spermatic vessels within the cavity of the belly, and there making the ligature and excision: but these are operations, which make a figure in books only, and are performed only by visionary writers; or, if ever they have been practised, serve to shew the rashness and insensibility of the operators, much more than their judgment or humanity. Whoever (notwithstanding these tales) performs the operation, in the circumstances abovementioned, will prove him-

himself much more hardy than judicious ; and will destroy his patient, without having the satisfaction of thinking, that his attempt, though successful, was yet vindicable : the only circumstance, which can, in such events, give comfort to a man, who thinks rightly.

On the other hand, as I have already said, every enlargement of the spermatic chord is not of this kind, nor by any means sufficient to prohibit, or prevent the operation.

These alterations, or enlargements, arise from two causes, *viz.* a varicose dilatation of the spermatic vein, and a collection, or collections, of fluid in the membrane, investing and enveloping the said vessels. In the first place, as there is no reason in nature, why a testicle, whose vessels have previously (for some time perhaps) been in a varicose state, should not become scirrhus ; so it is also clear, that the scirrhoty seizing such testicle, will by no means remove, or even lessen such varicose dilatation of the vessels from which it is dependant ; on the contrary, will most probably, and indeed does most frequently, increase such distention : but such mere varicose enlargement



largement of the vessels, whether it be previous, or consequential, to the morbid state of the testis, does not, nor ought to prevent the removal of it, if otherwise fit and right. It is indeed an objection to the doctrine of Mr. Le Dran, and a few other writers, who make no ligature on the chord, and trust to a slight contusion of it between the finger and thumb for a suppression of the hæmorrhage; but is none to the rest of the operation, as I can from experience testify.

In the next place, the diseased state of a truly scirrhus testicle, its weight, and the alteration that must be made in the due and proper circulation of the blood, through both it and the vessels from which it is dependant, may, and do concur, in inducing a varicose dilatation of the spermatic vein, without producing that knotty, morbid alteration and hardness, which forbid our attempts. Between these, a judicious and experienced examiner will generally be able to distinguish.

In the former (the truly diseased state) the chord is not only enlarged, but feels unequally hard and knotty; the parts, of which it is composed, are undistinguishably

ably blended together ; it is either immediately painful to the touch, or becomes so soon after being examined ; the patient complains of frequent pains shooting up, through his groin, into his back ; and from the diseased state of the membrane composing the tunica communis, such adhesions, and connexions, are sometimes contracted, as either fix the process in the groin, or render it difficult to get the finger and thumb quite round it.

In the other, (the mere varicose distention,) the vessels, tho' considerably enlarged, and dilated, are, nevertheless, smooth, soft, and compressible; the whole process is loose and free, and will easily permit the fingers of an examiner to go all round it, and to distinguish the parts of which it is composed ; it is not painful to the touch ; nor does the examination of it produce, or occasion, those darting pains, which almost always attend handling a process malignantly indurated.

I do not say, that the distinction between these two states is always, and invariably, to be made ; but that it often may, I know from repeated experience : and that the operation may safely be attempted, and



successfully be performed, I know from the same experience. The state of a man, left to the mercy of a malignant scirrhus, is so truly deplorable, that we cannot be too attentive, in examining the precise nature of each individual case ; and of embracing every opportunity, of giving him that relief, which it may at one time, be in our power to give, and which, the lucky opportunity missed, it may never be in his power again to receive.

The other circumstance, which I have mentioned, as capable of deceiving an operator, and inducing him to believe, that the spermatic chord is much more diseased, than it really is, and thereby deterring him from the performance of an operation which might prove successful, is the extravasation, or collection of fluid, in the cellular membrane enveloping the spermatic vessels, between the abdominal opening and the testis.

In the cellular membrane leading to a diseased testicle, it is no very uncommon thing, to find collections of extravasated fluid. These, as they add considerably to the bulk, and apparent size of the process, make the complaint appear more terrible ;  
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and, as I have just said, less likely to admit relief.

When this extravasation, is general thro' all the cells of the investing membrane, and the spermatic vessels themselves are hardened, knotty and diseased, the case is without remedy; for although a puncture, or an incision, will, undoubtedly, give discharge, to some or even the greatest part of the fluid; yet this extravasation is so small, and so insignificant a circumstance of the disease, and the parts in this state are so little capable of bearing irritation, that an attempt of this kind must be ineffectual, and may prove mischievous.

But on the other hand, collections of water are sometimes made in the same membrane, from an obstruction to the proper circulation through the numerous lymphatics in the spermatic process, while the vessels themselves are really not diseased, and therefore very capable of permitting the operation. In this case, the fluid is generally in one cyst, or bag, like to an encysted hydrocele, and the spermatic chord, cyst and all, are easily moveable from side to side; contrary to the preceding state, in which, the general load in the membrane



fixes the whole process, and renders it almost immoveable.

A discharge of the fluid will, in this case, enable the operator to examine the true state of the process, and, as I have twice or thrice seen, put it into his power, to free his patient from one of the most terrible calamities, which can befall a man.

There is one more circumstance relative to the scirrhus testicle, which appears to me to be worth attending to, as I cannot help thinking, that it has misled many, who have not had sufficient opportunity of comparing theory with practice.

It has been confidently asserted, and is generally believed, that a scirrhus testicle never begins in the epididymis of the said testicle. The consequence of this doctrine is, that when a disease, which affects a testicle, by enlarging and hardening it, makes its first attack on the epididymis only, such disease is not allowed to be a scirrhus, nor permitted to be treated as such.

That inflammatory kind of tumor, which, in the virulent gonorrhea, seizes the testicle, and is called the hernia humoralis, affects the epididymis; and, even unde

under the best care, sometimes leaves it too large, and too hard. This is said, never to end in, or produce, a scirrhus; and, I do not recollect, that I have ever known it do so. The disease, which consists in an induration and enlargement of the whole testicle, in the more confirmed lues, affects the epididymis also, as well as the glandular part of the testicle; and I do not remember to have seen it, either become cancerous, or not yield to mercury, properly administered. But that a true scirrhus, or cancer, sometimes makes its first attack on the epididymis, which it alters and spoils, before it at all affects the testicle, is a truth, of which I have not the least doubt. Among others, I formerly believed the contrary doctrine; and, in the first edition of this book, have given it as my opinion: but I am, from experience, so perfectly convinced of the truth of what I have now asserted, that I think myself obliged to declare it. The mistake, I suppose to have been made by the first propagators of this opinion, thus: The hernia humoralis, and the venereal sarcocoele, always enlarge the epididymis, and generally leave it somewhat too hard: both these have, by adven-



trous and unknowing people, been mistaken for scirrhi; but it being found, by experience, that these alterations in the epididymis, were either totally removed by medicine, or, if any part remained, it continued harmless through life, an inference was drawn, that, as true scirrhi are not often either removed by medicine, or continue harmless, therefore, an original affection of the epididymis could never be a true scirrhus; a deduction, which the premisses do not, by any means, authorize; and which, I am satisfied, is not true.

The operation of Castration is performed as follows.

The patient being laid on a table of convenient height, the integuments covering the spermatic vessels in the groin are to be divided. This incision should be begun, as nearly as can be, opposite to the opening in the abdominal muscle, and should be continued a good way down the scrotum.

The manner of beginning this incision, is differently described by writers; some of them advising that the skin be held up by an assistant; others that the knife be used perpendicularly, in this as in other parts;

it is indeed a matter of no importance at all, either to patient or surgeon, and therefore may very safely be left to the choice of the latter ; but the length of the division is of consequence to both. A small wound will indeed serve to lay bare the spermatic chord, but it will not permit the operator to do what is necessary afterward, with dexterity or facility : a small wound gives as much pain in the infliction, as a large one ; and, as the scrotum must, first or last, be divided nearly to the bottom, it had better be done at first, on every account. The spermatic chord, thus laid bare, is to be freed from its surrounding membranous connections ; and then the operator, with his finger and thumb separating the blood-vessels from the vas deferens, must pass a needle, armed with a ligature, between them ; and, having tied the former only, must cut through, or divide the whole chord, at a quarter or half an inch distance from the said ligature, according as the state of the process and testicle will admit. This done ; he is then (with the same knife, with which he has performed the former part of the operation) to dissect the testicle out from its con-



nection with the scrotum : the loose texture of the dartos, the previous separation of the testicle from the spermatic vessels, and the help of an assistant to hold up the lips of the wound, will enable him to do this with very little pain to the patient, and great facility to himself \*.

If any considerable artery bleeds, either in the scrotum, or in the dartos, it must be restrained by ligature ; and, when that is done, the void space, in which the testicle was, is to be very *lightly* filled with soft, dry lint ; which lint should be suffered to remain, until it be perfectly loosened, by the suppuration from every part of the sore ; if it be removed sooner, it must be done by force ; in which case, it will give unnecessary pain, and leave a crude, undigested sore ; if it be not removed, till quite loose, it will give no pain, and the sore will be found clean, and well digested, and requiring no other dressing afterward than mere dry lint ; which, from this time, should be  
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\* This circumstance of cutting off the testicle, before it be dissected out from the scrotum, immediately after the ligature has been made, is of more consequence to the patient's ease, as well as to the facility and expedition of the operation, than they, who have not tried it are aware of.

applied in such quantity, and manner, as to give nature an opportunity of contracting, and healing, the wound as fast as she can ; in both which, she may be considerably assisted by the judicious exhibition of the bark.

I am very sensible, that, in the above direction for the performance of the operation of castration, I have differed from the doctrine of some very eminent modern practitioners ; and, particularly, from Mr. Le Dran.

No man thinks more highly of Mr. Le Dran's abilities, than I do ; but, in these matters, every one must take the liberty of judging for himself ; and, I cannot help thinking, that I have good reason for my opinion.

Mr. Le Dran, having divided the integuments in the groin and scrotum, separates the testicle from the surrounding membrane, with his fingers, and with scissors. This method is rather coarse, is unnecessarily painful, and does, what must for ever be wrong, multiplies the instruments to be used, without any necessity. The knife, in the hands of any man at all accustomed to the use of one, will execute  
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the whole, with more apparent dexterity, with less pain, and much greater expedition \*.

I have, without hesitation, directed the spermatic chord to be tied. Mr. Le Dran's advice is different. He advises, that a ligature be passed underneath it; and left there to be tied, or not, as occasion may require.

He then takes the extremity of the latter, between his finger and thumb, and, by rubbing, pinching, or bruising, produces a degree of contusion, sufficient (as he thinks) to prevent, in general, any hæmorrhage; and, having so done, he cuts off the

\* “ Je fens le scrotum jusqu' au dessous du testicule  
 “ malade, et avec mes doigts, je detache le testicule  
 “ d'avec le tissu cellulaire, qui le tient attaché dans le  
 “ scrotum. Si quelque portion membraneuse a de la  
 “ peine a se detacher, je la coupe avec des *ciseaux*.”  
 Mr. De Garengéot divides the whole scrotum with scissars; and I cannot say, that I have not seen it done in London; but it is a tedious, coarse, cruel, and very unhandy method of doing it. “ Cette premiere incision  
 “ faite, l'opérateur poussera de force, le doigt indice, ou  
 “ le grand doigt sous la peau, dans les cellules graisseuses, afin d'entrer dans le scrotum, et il aggrandira  
 “ son incision en coupant, sur son doigt avec des cise-  
 “ aux mousses la peau, qu'il aura separée des graisses,  
 “ et il ouvrira ainsi tout le scrotum.”

Garengéot, Operat. Chir,

the testicle from the said chord, immediately below the bruised part, leaving (as I said before) the ligature ready to be tied, if necessary \*.

This method, of first bruising, and then cutting off the spermatic chord, without making a ligature on it, is also prescribed and practised by some gentlemen of eminence here ; and, I make not the least doubt, that, both with these gentlemen, and with Mr. Le Dran, it may have been successful : but, as I have seen three people lose a very alarming quantity of blood, and one very nearly his life, under it ; and as, in the many times, which I have performed this operation, I never saw the least  
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\* “ Il n’y a que l’artere qui m’interesse, parce qu’il  
“ n’y a qu’elle, qui puisse donner du sang apres que j’au-  
“ rai coupé le cordon. Je la prends entre deux doigts  
“ a l’endroit, ou elle passe sur l’os pubis, et avec elle les  
“ veines qui l’entourent ; puis je passe entre ces vaisseaux  
“ et le canal deferent, que l’on distingue sous le doigt ;  
“ a sa dureté, une aiguille enfilée de deux brins de fil  
“ ciré. J’ôte l’aiguille, et je laisse les fils, pour faire la  
“ ligature au cas qu’elle devienne necessaire. Je prends  
“ aussi-tot les vaisseaux plus bas que l’os pubis, et je le  
“ froisse entre mes doigts, pour y faire une espece de con-  
“ tusion ; puis je coupe le cordon un peu, au dessous de  
“ cet endroit froisse.” Mons. Le Dran.



inconvenience arise from the ligature, I cannot approve the omission of it.

Mr. Le Dran himself, not only seems to be apprehensive, of what *may* be the consequence, by his passing a ligature, and leaving it ready to be tied, and by the very good reason, which he gives for not cutting off the spermatic chord (as most of his countrymen advise) close to the opening in the tendon of the oblique muscle ; but also, in the same paragraph, acknowledges, that a fatal hæmorrhage has been the consequence of the ligature having slipped off, after it has been made \*.

In the case of a perfectly sound, and unaltered spermatic chord, in which the vessels are not become varicose, and the operator

\* “ On demandera, pourquoi je ne fais pas la ligature du cordon immédiatement au dessous de l’anneau, comme les auteurs le prescrivent. Je reponds, que si la ligature s’échappe, on ne peut plus lier l’artere, qui se retire au dessus de l’anneau, ou elle peut donner du sang dans le tissu cellulaire, du peritoine, et faire *perir le malade, comme l’on a vu arriver.*” Le Dran.

“ Si le cordon spermatique est gonflé jusqu’ auprès de l’anneau, on ne peut suivre cette methode ; et il faut *absolument* faire la ligature du cordon, immédiatement au dessous de l’anneau.” The remainder of this paragraph does indeed seem a kind of contradiction of the

rator can make his division of them as low as he pleases, this froissement, this contusion may be sufficient to prevent an hæmorrhage; but in cases, where the spermatic chord is enlarged, Mr. Le Dran himself does not think it safe to trust to it. And that the vessels, from which a scirrhus testicle is dependent, may be considerably enlarged, and distended, and that pretty high, and yet not so diseased, as to render the operation unadvisable or unsuccessful, I have more than once or twice seen. The compression which may be made, of the extremity of the divided chord against the os pubis, on which some stress seems to be laid, will, whether it be made by the finger, or by compress and bandage, prove more

preceding. “ S’il est tres gonflé meme un plus haut que l’anneau, et qu’on ne puisse se dispenser de faire l’operation, il n’y a point de ligature a faire; il faut fendre un peu l’anneau, puis couper le cordon, et l’artere ne donnera pas de sang.” Set aside all consideration of the propriety, or impropriety, of performing the operation, when the spermatic chord is diseased above the ring (as it is called) what can be the reason, **why the artery** should not be expected to bleed, after being divided within the abdomen; when the same gentleman allows it to have produced a fatal hæmorrhage, upon retiring into that cavity, or into the cellular membrane of the peritoneum, after having been cut off without the said ring.



more troublesome to the patient, than the very momentary pain of the ligature.

The last circumstance, in which I have ventured to differ from the commonly prescribed rules, is, that I have not advised the removal of any part of the scrotum \*.

My reason is, that I never found it necessary in any case, when the scrotum was not adherent to the testicle.

Let the size of the scirrhus be what it may, the scrotum will corrugate to its natural form, when the wound is healed ; and if, in the operation it fairly be divided to the bottom, will neither lodge matter during the cure, nor produce any inconvenience afterward.

When

\* “ Si quelque portion membraneuse a de la peine a se detacher, je la coupe avec des ciseaux ; et *quand le testicule est ote*, j’enleve une partie de la peau du scrotum, si cette peau s’est trop etendue par le volume de la tumeur.” Le Dran.

The same direction is given by Laur. Heister. “ *Cutis scroti quæ exempto testiculo super vacanea ut rescari forfice debet.*” By which means (that is, by not removing the skin along with the testicle, but afterward) the patient suffers almost as much pain, as the whole operation, properly performed, would occasion ; and that without any necessity.

When it is adherent to the testicle, and the cellular structure of the dartos is thereby destroyed, all such adherent part should certainly be removed; not only because it is diseased, but because it will give the patient a great deal of unnecessary pain to dissect it: but then it should always be removed along with the testicle, in the manner directed by Mr. Samuel Sharpe, and not be dissected off first, and removed afterwards.

By the latter method, the patient's pain is increased, prolonged, and even renewed without the least necessity.

In every operation, in which a considerable portion of skin is to be divided, and particularly in this, and in the amputation of womens breasts, it should always be remembered, that, as the division of the skin (the general organ of sensation) is the most acute and painful part of what is done by the knife, it cannot be done too quick, and should always be done at once: the scrotum should always be divided to the bottom, and the circular incision in the skin of a breast always made quite round, before any thing else be thought of. If this be not executed properly, and perfectly, the operation



ration will be attended with a great deal of pain, which might be avoided, and the operator will be justly blameable.

Before I take my leave of this operation, I think it right, to give the young practitioner a caution, *viz.* that if the tumor be of a pyriform figure, perfectly smooth, and equal in its surface, and free from pain, notwithstanding the degree of hardness may be great, and he may, in his own opinion, be clear that the tumor is not produced by water, but is a true scirrhus, I would advise him immediately, previous to the operation, to pierce the anterior part with a trochar, in order to be certain. My reason for giving this advice is ; that I was once so deceived by every apparent circumstance of a true, equal, indolent scirrhus, that I removed a testicle, which proved, upon examination, to be so little diseased, that had I pierced it with a trochar, previous to the operation, I could, and certainly should, have preserved it.

Having, in the immediately preceding pages, given my opinion very explicitly concerning the expediency and propriety of removing, by the operation of castration.

tion, a scirrhus testicle, when fairly characterised, and properly circumstanced, it cannot be necessary to relate any such cases. Every man, who is at all conversant with this kind of business, knows, that the operation on proper subjects; and in proper instances, is very frequently successful; and that many people have been, by it, rescued from immediately impending misery, and have passed many years in health and ease, and in a state to propagate their species.

Particular accounts of such, would appear like mere boastings of success.

Those, therefore, which follow, are selected, either because the fortunate event was not very probable; and they may, therefore, serve to prove, that we should not too hastily, or inadvertently, despair.

Or, because their true nature was mistaken; and, therefore, they were improperly treated.

Or, that they were attended with circumstances not to be foreseen or prevented.

Or, that the case was too long neglected, and the operation too long deferred; or performed, when success from it, was not at all likely.



Or, that they were combined with other complaints, either general, or local ; by which the best calculated attempts must be frustrated.

Or, that they contain something in their nature, which appears to be singular. From each, or all which, I apprehend, the practitioner may reap full as much, if not more, beneficial instruction, than from the most pompous histories of success.

#### C A S E    XXXIX.

**A** Man, about forty-seven years old, who had been, for the space of three or four years, afflicted with a truly scirrhus testicle, applied to me. He had been, more than once, during that time, advised to part with it, but was afraid of the operation. He was now alarmed, by an alteration, which it had lately undergone ; and from some circumstances in his general health which were new. The tumor, from its first appearance, had been indolent, and equal, the spermatic chord in a natural state, and he had no other complaints of any kind. The testicle was now very unequal, in its surface ; it had increased considerably,

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bly, within the last three months ; and the spermatic chord was enlarged, (that is) become varicose, more than half way from the testicle to the groin. He had also, a cholicky disorder, which recurred frequently without any purging.

The case was unfavorable ; and there appeared to me to be no chance, but from castration : the state of the spermatic vessels rendered that dubious : but the improbability of the disease remaining in its present state, made it still worth embracing. The general state of the patient's health, was also an alarming circumstance ; but neither could that be amended, while the local disease remained.

Having apprized him of all these circumstances, he willingly submitted to the operation ; which was performed the next day. The state of the process, just admitted of making the ligature between the enlarged part and the abdominal muscle. Nothing particular attended the cure ; the sore healed very kindly, and the man has enjoyed a good state of health ever since : which is now, between four and five years.



## C A S E XL.

**A** Gentleman from America applied to me, on account of a complaint in one of his testicles. It had, while he was abroad, been supposed to be, and had been treated as, venereal ; by which means, what was, at first, a simple, equal, indolent scirrhus, with a spermatic chord unaltered from a natural state, was, when I saw it, unequal, at times painful, and dependent from spermatic vessels considerably enlarged, and swollen, though still soft, and free from knot or induration. He was, otherwise, in perfect health, his age thirty-three, and his constitution unhurt by debauchery or intemperance.

With regard to the testicle, there could be no doubt, either of the nature of the disease, or the propriety of its being removed ; but the state of the spermatic vessels was such, as made the prospect of success from castration very uncertain. Two or three consultations were had ; the result of all which were nearly the same, that is, the surgeon were very apprehensive of the operation, from the state of the chord, and therefore would not press it ; and the physicians pre-  
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scribed internal remedies; and, among these the cicuta, which luckily happened to disagree so much with the patient, that he would not go on with it: I say luckily, because it thereby prevented the loss of more time in the use of it.

The patient was single, a sensible man, and had a great deal of courage and resolution in his natural constitution.

Having maturely weighed all that had been said to him, and finding that no relief was likely to accrue from medicine, and that his disease was as little likely to stand still, he determined rather to take the chance, which the operation would give him, either of sudden destruction, or a cure, than live in that state of anxiety, which must arise from a constant meditation on the nature of his disease.

The operation was performed; and, in the execution of it, I was particularly attentive to the state of the vessels. The whole process was, I may venture to say, full double the size it ought to be, and the veins very tortuous, by their being distended; but there was no induration, nor any inequality, save that proceeding from the varicous state of them.



When the testicle was removed, I examined that also very carefully. The cavity of the tunica vaginalis was, in a great measure, abolished, by an almost general adhesion of that membrane with the albuginea ; the epididymis was tolerably sound, but the whole compages of the testis hard, and diseased : and, in the very center of it was a putrid slough, and a very small quantity of ill-coloured sanies.

It is now, above five years, since the operation. The patient has enjoyed perfect health ever since, and finds no one inconvenience from the loss of the part.

In these two cases, the event was fortunate beyond expectation. In such circumstances, every thing is to be feared : the operation is seldom advisable, because seldom successful. However, they may stand, as instances, to prove, that, where there is even a small foundation for hope, it is better to embrace such opportunity, than to leave the patient to his fate. Neither himself, nor his friends, should, in such case, be flattered, or deceived : but the uncertainty should be laid before them, and the operation should be their own choice.

C A S E XLI.

**A** Young man, about twenty-four years old, desired my opinion concerning a testicle, which was beginning to enlarge, and was already become very hard.

The account he gave was, as follows.

That, about seven or eight months before, he had a common hernia humoralis, in consequence of the suppression of a gonorrhea by hard riding. That the inflammatory symptoms were soon removed by rest, evacuation, and proper application ; but that neither the testicle, nor the epididymis, had ever returned to their natural size. That the surgeon, whose care he had been under, had, since the inflammation was gone off, given him a considerable quantity of mercurial medicine internally, and had rubbed on a good deal of the ointment externally ; by which his mouth had been made sore ; and that he had also taken two or three mercurial vomits.

The tumor was perfectly indolent, even upon being handled ; it had a stony, incompressible kind of hardness, and the spermatic vessels were in a sound, natural state.



I told him, that whatever might have given rise to his disease, it was my opinion, that it was a true scirrhus ; that it would never be cured by medicine ; that, although it was quiet, and free from pain now, no man would pretend to say, how long it might continue ; and that I should, by all means, advise him to part with it in its present state, rather than stay till such alteration should be made in it, as though it might induce him to comply, might render the operation unsuccessful. He disapproved my advice, and I saw no more of him for near four months ; at the end of which time, he called upon me again.

His testicle was a good deal increased in size, but the spermatic chord still unaffected.

I repeated my former advice, and he again refused to comply.

At the distance of two months from this time, I saw him again. His testicle was still more enlarged, and the cavity of the tunica vaginalis palpably contained a fluid. He said, he had showed it to two other surgeons ; both of whom had promised him much relief, if not a cure, by letting out that water, which, they told him, made  
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the principal part of his disease. I answered, that I had no manner of doubt, that there was a fluid ; but that I apprehended it to be much less in quantity, than either he, or they who had promised a cure by letting it out, took it to be : that it appeared to me, to make so small a part of the swelling, that I was sure, that the decrease of size, upon its discharge, would bear no proportion to his expectation : that this fluid made no part of the original disease, but was an accidental consequence : that an opening made into a testicle so circumstanced, might excite very disagreeable symptoms, from which he was at present free ; and that my opinion was still, that it ought to be totally removed, or not meddled with.

He left me, with much dissatisfaction. He said, that I was too tenacious of my own opinion, and too regardless of that of others : But I had seen too many of these cases to be in any doubt concerning its nature ; and I knew the people, under whose direction he then was, too well, to suppose, either that they knew any thing of the matter, or that they would leave any thing unattempted, while he had either credu-  
lity



lity or money. Soon after this, I heard, that he had submitted to have a puncture made, by which a very small quantity of bloody serum was discharged ; but the size of the tumor so little lessened, that his operator would fain have thrust a lancet in again, and deeper ; but this the patient would not permit.

Being vexed at what had happened, he came not again to me, till at the distance of near two months more. He was now in a very different state. His complexion was wan and pale, his flesh and appetite gone, his testicle very large, unequal, and painful, and the spermatic chord diseased quite up to his groin. I was very sorry, to be obliged to tell him, that I could do him no good ; and that the operation was, by no means adviseable.

He now, of course, fell into the hands of those, who only want a little ready money ; and having tried two or three of these, he was advised to take the cicuta ; which he did for some time, and in large doses, but, (as usual) without any real, or permanent good effect.

His state, soon after this, became truly deplorable ; his testicle was of an amazing  
size ;

size; the spermatic chord, quite up to his belly, so large as hardly to be capable of being grasped by the hand; a very large, hard tumor within that side of the belly; his pain acute and constant; and his flesh strength and appetite totally gone.

In these circumstances, a believer in the omnipotence of the sublimate solution, prescribed it for him: from which he received the advantage of having his death hastened.

## C A S E XLII.

**A** Man, about thirty, of a full plethoric habit, shewed me a tumor in the spermatic process, about the midway between the groin and testicle: it was hard, circumscribed, indolent when not meddled with; but painful for a long time after having been handled, and the pain of such kind, as to indicate the disease not to have a very benign character: the testicle was perfectly free.

I advised the losing some blood, gentle evacuation by stool, the use of a suspensory to take off the weight, and desired the patient to let me see him again in about ten days.



days. At the distance of somewhat more than a month, he came to me again ; and told me, that from me he had gone to a rupture-doctor, who put a truss on him, and giving him an external application, bad him come to him again in a week ; that the pressure of the truss, joined to the irritating quality of the ointment, greatly increased the pain and the swelling : that his doctor then applied an adhesive plaster, and when he had worn that a few days, he thrust a lancet into the body of the tumor ; that nothing followed the lancet but blood ; that he enlarged the opening, and filled it with lint, and that, for several days after, he had dressed the sore with red powder (precipitate). He had now as truly malignant a cancerous sore, as I ever saw ; and all the spermatic process above it was so diseased, as to prohibit all thought of an operation. Nothing palliated the fury, with which it proceeded ; he lived several months in great and constant pain, having a large hard body within the belly (on that side) extending from the groin quite up to the region of the kidney ; and which, I make no doubt, consisted of the diseased spermatic vessels.

C A S E XLIII.

**A** Man, about forty-eight years old, who lived at some considerable distance from London, perceived one of his testicles becoming hard ; larger in size than it used to be ; and when he was on horseback, somewhat painful.

Having been several times clapped, and twice confined with a hernia humoralis, he thought that this swelling was of the same kind ; and applied to the apothecary of the town, where he lived ; who, not being much accustomed to surgery, and being misled by the patient's opinion and account, looked on it in the same light, and gave him several doses of calomel : these not succeeding to his wish, he confined the patient to his bed, applied a pultice to the scrotum, and vomited him twice or thrice, with the mercurius emet. flavus. By this process, the man became feverish, lost his appetite, sleep and flesh ; and the testicle increased, both in size and hardness.

I was now consulted by letter, and gave my opinion, that the case was not venereal ; that mercurial medicines, or whatever



ever was likely to increase the circulation, were wrong, and would be found prejudicial ; that whatever might become necessary hereafter, the present intentions ought to be, to procure ease, to remove the fever, to keep the body (which had always been costive) gently open, and to acquire strength by the administration of soft, light nourishment ; and I recommended the decoct. *sarsaparillæ*, with milk, for his common drink.

In another letter, which I received at about three weeks distance from the first, my opinion was asked concerning the *cicuta* : to which, I replied, that in scirrhus and cancerous cases, (one of which I took this to be) I had never yet seen it do any good, though taken for a considerable time and in large doses ; but, on the other hand, as I had never seen it do any harm, I could have no objection to its being tried.

In about two months, or a little more, I had another letter, giving me an account, that the *cicuta* had been taken freely, and had also been constantly applied as a cataplasm ; that, in about a month after its first application, the pains, both in the part and in the patient's back, were remarkably

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increased ; that he, now and then, complained of being chilly, and that there had been, from about that time, a palpable fluctuation of a fluid, near to the surface of the tumor ; that this fluid had been let out by the point of a lancet, and proved to be only a small quantity of a bloody serum ; that, from the time this opening had been made, the pain, as well as the size, of the tumor had increased ; that, by continuing the cicuta pultice, with the addition of some Burgandy pitch, a collection of matter, or impostumation, was now produced, plainly to be felt, though deep in the body of the testicle : and I was desired to say, what I thought would be the properest manner of giving discharge to it.

I returned answer, that it was a very disagreeable thing, to be obliged to give a positive opinion on a case by relation only ; and that from those, who, I was sure, thought not of it as I did. That, as it was by no means unlikely, that I might be mistaken, I desired, that what I should now say, might not be misunderstood, or applied to any other case, than what *I took this to be* ; that I took it to be a scirrhus, which was becoming cancerous apace, and would, very soon,



soon, show more of its malignant disposition : especially, if irritated. That the fluid, which had been let out, was nothing more than the water of the tunica vaginalis ; whose absorption was prevented, and whose color was produced by the diseased state of the testicle. That I should not have advised the letting it out at all ; much less, in that small quantity. That it was my opinion, that the fluid, which was now supposed to be felt to fluctuate deep in the body of the testicle, was, by no means, matter, or the effect of a kindly suppuration ; but a malignant sanies, the consequence of the very diseased state of the testis. That I did verily believe, they would find, that the quantity of it bore small proportion to the size of the general tumor. That the letting it out would, more probably, occasion an aggravation, than an alleviation, of symptoms, and render the disease still more painful, and more hazardous than it was already. And that I should not be surprised, to hear that there was no fluid at all.

To this, I received a short reply, signifying, that it was apprehended, I had mistaken the case. That another gentleman in London had been consulted ; who (from

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the account given of the state of the spermatic chord, of the preceding herniæ humorales, and, most probably, from a misrepresentation of the case) had advised the making an opening by knife ; which had been done : but the writer of the letter did not say a word, about what was let out.

I heard no more of the case, or patient, for near another month ; and then was sent for, one evening, to an inn in this town, where I found him in a situation, truly deplorable. The testicle was amazingly large, and one half of it covered by a prodigious fungus, which was intolerably painful, gleeted largely, and, at times, bled profusely : the spermatic process was also very large, and a tumor plainly to be felt within the belly, caused by the diseased state of the feminal vessels. The man's strength and flesh were exhausted ; in short, he was dying, and did not live, above a week or ten days, from this time.

I believe, it must be unnecessary for me to observe, that the misconception of the nature, and the method of treating, the three preceding cases, had no small share, in contributing to the sufferings of the patients, and to the fatality of their events.



I believe also, that most practitioners, who have been conversant with this kind of business, will be of opinion, that the operation, performed in due time, would, certainly, have contributed to the ease, and, perhaps, to the preservation of them.

A cancerous disposition in the habit will, certainly, render a patient liable to be destroyed, by the diseased state of parts out of our reach ; and thereby render the operation, although performed in due time, in the best manner, and under the most favourable apparent circumstances, unsuccessful : but as this very often cannot be foreseen, or foreknown, surely, it must be very wrong, to omit doing what may preserve health and life, only because it may also happen, that it may do neither. In all these cases, a guarded prognostic should be made ; and it should be considered, that, though we are sometimes deceived, and frustrated, by sinister events ; yet, on the other hand, it happens, and that not infrequently, that cases, which have even an unfavourable and threatening aspect at first, come to a very happy issue.

C A S E XLIV.

**A** Man, about fifty years old, desired my advice, concerning a diseased testicle. It was about the size of a small pomegranate, very hard, perfectly free from pain, and the spermatic process free from all appearance of disease. Castration, he said, he was determined not to submit to ; and only wanted to know, whether I could put him into any other method of getting rid of his disease. I gave him my opinion very freely, on the great improbability of his being served by any other means : and, tho' I did, in some degree, advise him, to submit to the operation, yet there were some circumstances in his general health, which induced me not to press it ; and made me rather pleased, that he was previously determined against it. He had a very fallow, diseased complexion, a general want of muscular flesh, and firmness ; a very frequent cholic, sometimes attended with a threatening diarrhœa, and sometimes with an obstinate constipation. In the space of two or three years, he took a great variety of medicines ; and saw a great number of



practitioners, both regular and irregular, but found no benefit ; neither did the testicle in all that space of time suffer any material alteration, or the process become at all affected. He died of an obstinate and painful dysentery : and when he was opened, his mysentery was found full of large, hard, scirrhus knots ; all the lymphatic glands about the receptaculum chyli, and beginning of the thoracic duct, remarkably diseased ; and the liver much enlarged, and hardned.

The want of an healthy appearance, the pains, and other complaints which attended the man, might have been owing to causes independant of his scirrhus testicle ; and upon such supposition, the removal of the said testicle by the operation might have been vindicable : but if it had been done, it should have been, under a very guarded, and doubtful prognostic.

#### C A S E XLV.

A Man, about fifty, shewed me a large, diseased testicle, which, he said, had been gradually, for near four years, getting to that size and state ; and was produced, as he thought, by the kick of a child.

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The surgeon, who attended his family, had often seen it, while it was small, equal, and free from pain; and had as often pressed him to part with it; but while it was easy, he would never think of it.

It was now large, and unequally hard; it had, in some parts of it, a quantity of fluid, in others none; it was very painful to the touch; it gave him great uneasiness in his back, from its weight; and even, while it was suspended, or he was in bed, he had such, and so frequent, darting pains in it, as to render him very unhappy, and to deprive him very much of his natural rest. The spermatic chord was perfectly free; but the frequency of his pain, and the disturbance of his sleep, gave him a very unhealthy appearance. I told him, that I thought he had missed the most favourable opportunity, by not submitting to the operation, while the testicle was small, smooth, and indolent; that some circumstances in his general state and habit were unfavourable; but still, as the spermatic process was free, and as there was no great probability, that the testicle would ever again be easy, or cease to increase in size, until the spermatics should become diseased



also, I thought it was better, to take the chance of the operation, than submit to that certain misery, which must attend the farther progress of the disease.

The patient consented, the operation was performed, and every thing went on in the most favourable manner, till the sore was reduced to the size of a sixpence; he was then seized with a pain in his belly, the sore changed its aspect, and from appearing to be almost healed, it fretted, became foul, spongy, and spread so considerably, that, in a fortnight's time, it was as broad as a hand; it bled frequently, gleeted largely, was extremely painful, and very offensive; nothing that was done, had any good effect on it; and having languished some months, he died.

Some of the circumstances in this case, were undoubtedly unfavourable; but I have seen people do very well, under similar ones; and I still think, that the patient chose the lesser of the two evils, and embraced the more probable chance.

C A S E XLVI.

A Poor man, who was in St. Bartholomew's Hospital for a hurt in one of his legs, desired me to look at his scrotum, which was of a very large size.

The tumor was principally formed by water in the tunica vaginalis testis ; but, through the fluid, it was easy to distinguish a diseased testicle. He complained of uneasiness from the weight, and had, he said, now and then, a pain shot up from the testicle into his back : he had also, now and then, a cholic, with nausea and inclination to vomit ; and was very subject to a sort of strangury. I drew off near a wine quart of a yellow thin fluid, by means of a trochar ; and, when that was done, was so satisfied that the testis was diseased, that I would have immediately removed it ; but the man would not consent. He soon got well of his leg, and was discharged from the hospital.

He was a bricklayer's labourer ; and in about a fortnight or three weeks time from his discharge, fell from a high scaffold, and was so much hurt, that he died, after he had



been again in the hospital two days ; and I gladly embraced the opportunity of examining his dead body. The tunica vaginalis was not only much distended, but considerably thickened. The testicle was a great deal too large, and too hard ; but, upon division, did not shew any considerable mark of disease, except in its very center, where there was a small quantity of a discoloured fannies, and a putrid slough. The spermatic vessels were not at all altered from a natural state, except that the vein was varicous. Immediately below the emulgent vessels on the right side, was an irregular tumor, near as big as the kidney itself ; perfectly scirrhus, and firmly attached both to the renal blood-vessels, and to the aorta. The external part of this tumor was rough and unequal, and of a whitish color ; and in the center of it were exactly the same appearances, as within the testicle, *viz.* a small quantity of matter, and a slough.

Where the ureter was crossed by this tumor, it was much compressed, and straitened in its diameter ; but below this stricture, it was considerably dilated. The kidney was not quite healthy in its appearance.

Had

Had this man been castrated, I make no doubt, that his internal scirrhus would have destroyed him ; but that was a circumstance, not to be collected from his general state, or from his complaints, and therefore not to be foreknown : the operation would therefore have been vindicable, though unsuccessful.

C A S E XLVII.

A Middle-aged man was brought into St. Bartholomew's-Hospital for an accidental hurt, of which he soon got well : and when he was going to be discharged, he desired Mr. Freke, whose patient he had been, to look at one of his testicles. It was large and unequally hard ; gave him a great deal of pain, at short intervals, and seemed to contain a quantity of fluid in its middle part : the spermatic chord was pretty free, just at its exit from the abdomen ; but all between that point and the testicle was much diseased.

Some of the gentlemen present expressed their apprehensions, that the *state* of the process was such, that the operation would most probably be unsuccessful, and therefore



fore they were rather inclined, that the man should be discharged, without any attempt of that kind; but Mr. Freke thought otherwise, and performed it immediately. The vessels of the diseased process were varicous to a great degree, and very knotty and hard; the connecting membrane was much thickened, the epididymis and testicle quite confounded together; and in the body of the latter was a quantity of bloody sanies, contained in two or three large cells.

The man got no rest after the operation, the vessels of the dartos bled through all the dressings, more than once, and in a few hours he became very hot and restless, with a pulse quick and hard.

The next day he bled again; not from the chord, but from the whole dartos: his scrotum became much swelled, and loaded with a lymphatic kind of tumefaction, but was very little inflamed; his pulse was inconceivably rapid, but small; he complained of acute pains in his back, a burning heat within it, an intolerable thirst, and an anxiety that was more terrible to bear than all the rest: toward night (of the second day) his pulse faltered, he became  
easy,

easy, and his extremities cold, and early on the third morning he died.

C A S E XLVIII.

**A** Healthy man, under forty, came to me with a complaint in one of his testicles; the epididymis of which was much enlarged, and hardened, while the body of the testis seemed to be in a natural state.

His age, his general appearance, and the particular state of the part induced me to believe it to be venereal; but, upon asking him a few questions, he asserted, that he had never received any taint of that kind in his life. He said, that the first time he had ever taken notice of this complaint, was about six weeks before, after riding hard in the day, and dancing all night; that it was very small at first, had increased gradually, and now began to be very troublesome to him, either in riding or walking; and that not only from its mere weight, but from frequent pain in it.

I am



I am obliged to acknowledge, that I was, at this time, so prejudiced by the generally prevailing doctrine, that a true scirrhus or cancer never began in the epididymis ; that I thought, either that my patient was deceived himself, or had a mind to deceive me.

I therefore gave him a mercurial pill to take every night, consisting of a small dose of calomel, with some kermes mineral, and directed a small portion of ung. mercur. to be rubbed every evening into the spermatic process.

By pursuing this method for about ten days, his mouth became sore, and he was much displeased thereby ; I gave him some gentle carthatics, but his spitting kept at above a pint a day, for more than a fortnight : at the end of which time, the hardness, as well as size, and inequality of the epididymis and vas deferens were manifestly increased ; and his uneasiness in these parts was greater.

The death of a near relation now called him into the country, where he staid about a month. At his return, he sent for me. The disease was increased, but still confined

finned to the epididymis ; which was now in that state, which, I suppose, constituted the caro adnata of the antients : it was hard, craggy, painful, and in size nearly equal to the testicle itself ; the darting pains were frequent, and the uneasiness from its weight was constant and tiresome.

I was now satisfied of the true nature of the case, and let drop a hint of the propriety of removing the part ; but having a very delicate and timorous man to deal with, I desired him to take the opinions of some other gentlemen.

He saw Mr. Middleton and Mr. Nourse as surgeons, and a third gentleman as a physician.

The two former advised immediate castration ; the last seemed to wish him to take the cicuta, or the solanum, medicines then in fashion. The thought of castration shocked him so much, that he willingly embraced any hints concerning specifics.

He took the cicuta for more than two months, beginning with a small dose, and increasing it gradually to very large ones. It now and then made him a little sick and giddy ; but the disease increased under it so

ma-



manifestly, that I was apprehensive, that we were doing much worse, than merely losing time. I signified my suspicion, and pressed the operation ; but he would not hear of it.

The solanum was now tried under the direction of the doctor ; but it disagreed so much, even in the smallest quantity, that there was no possibility of persisting in it.

Upon this, as upon most occasions of this kind, every acquaintance recommended either a specific or a quack ; most of which were tried, and I saw no more of my patient, four above four months.

He then sent for me again. The whole testicle and spermatic process, quite within the belly, were thoroughly diseased, hard, and knotty ; his pain was acute, and almost constant ; and his whole appearance truly pitiable.

He was much displeased, that I, who had often pressed him to submit to the operation, would not now perform it ; but it was too late. In a few days after this visit, he applied to an operator, who required a very considerable fee before-hand, and layed the whole spermatic process open. A very terrible hæmorrhage ensued,  
and

and he died the next day in inexpressible agony.

I visited a patient with Mr. Markland, whose first local complaint was a hardened, enlarged epididymis, and vas deferens ; and upon whom, the whole power of mercury, and other supposed deobstruent medicines, together with cataplasm, fomentation, &c. were tried, during a long space of time, in absolute confinement, but to no good purpose : the part became so large, so diseased, and so painful, and the habit of the patient so much affected by it, that extirpation was absolutely necessary. When the part was removed, I examined it very carefully, and never saw a more true and perfect scirrhous in my life. The epididymis was thrice the size it ought to have been, its external surface was very unequal, and very hard ; and in the centre of it was a putrid slough, with a small quantity of matter, just as it is found very often in the middle of a scirrhous and cancerous testicle. The testicle was hardly, if at all, altered from a natural state, except that the tunica vaginalis was generally adherent to the albuginea. Its internal texture was soft, and bore very little mark of distemper.

I have,



I have, at this instant, a lad in St. Bartholomew's-Hospital, both whose testicles are so truly diseased, that they must of necessity be removed. I have seen him from the first of the attack. The disease for several months occupied only the epididymis, and had no connection with, or dependance on, any venereal mischief. Every thing that the art of surgery could do (or at least every thing that I am acquainted with in it) has been tried, but without any effect; and nothing but the operation can save him.

## C A S E XLIX.

**M**R. William Sharp desired me to visit a patient with him. The case was a scirrhus testicle. It was large, and very hard; but smooth, equal, and no other way painful, than from its weight. There was nothing in the testicle, which forbade the operation; on the contrary, it was in such state, as to promise very fair for success; but the spermatic process, from the testis quite up to, and apparently within, the opening in the abdominal tendon, was so large and full, that it was impossible to feel  
the

the vessels. This fulness, and increase of size, if it could be supposed to proceed from a diseased state of these vessels, and their membranes, was such a bar to castration, that no body could possibly think of it in such circumstances : but, on the other hand, if it could be supposed to be owing to an extravasated fluid, the withdrawing such fluid might make a very material alteration in the state of all the parts. Mr. Sharp said, that he had seen this patient some months before, and had let out (as he thought from the tunica vaginalis) a quantity of water ; and that he then found the testicle a great deal too large, and was very sure, that he then distinctly felt the spermatic vessels. The tumid process, tho' large, full, and tight, yet was smooth, and equal throughout ; and I thought, that I could very plainly feel a fluctuation through the whole of it ; that is, from the opening in the oblique muscle, to the upper part of the testicle. The patient was young and healthy, the weight and size of the testicle very troublesome, and nothing but this state of the process in the case, to make it necessary to defer the operation a moment. A puncture was made with a large lancet,



into the tumor just above the testicle ; near a pint of clear yellow serum was discharged ; the swelling subsided : the spermatic vessels, which were in a sound, natural state, became easily distinguishable ; the operation was immediately performed, and proved successful.

## C A S E L.

**A** Poor sailor, who had been discharged from one of the navy Hospitals, applied to St. Bartholomew's.

He had a scirrhus testicle, which was not large, but was as hard as marble, very craggy, and unequal, and attended with frequent acute pain : the process also was so large, that, upon such examination as I had then time to make, I told the man, that I did not conceive, that he could receive any benefit, even from the operation ; but one of the governors, prevailed on by the man's solicitation, desired that he might be admitted.

The first time we were all met together, I produced this man for the general opinion ; which was, that if the increased size of the spermatic process, was the effect of

a diseased state of the parts composing it, the operation was improper, as it would only hasten the man's death, and that in a very painful manner; but if it could be thought to be owing (as in the preceding case) to an extravasation of fluid in the common membrane, it was certainly worth while, to try what the discharge of that fluid might produce.

The whole was related to the man: he was informed of our doubts, of what we intended to do, and of the probability that it might be of no service to him: a puncture was made in that part of the process, where the fluid was most palpable; a large quantity of lymph was discharged, the tumor subsided, the spermatic vessels became very distinguishable, the operation of castration was immediately performed, and the man went out from the hospital well.

### C A S E   L I.

**A** Poor man was taken into St. Bartholomew's Hospital, for a complication of complaints; but particularly for a frequent and acute pain in his back and belly.

When he had been there a day or two, he told the nurse, that he had a complaint



in his scrotum ; and the next day I was desired to look at him.

He had a diseased testicle, of the scirrhous kind, which was not very large, but was hard and unequal : the spermatic process was not in a natural state, nor very much diseased ; and he had a large and very troublesome omental hernia. The man had also a very morbid aspect, had his rest frequently disturbed by pain, and was near to fifty years old.

He was very solicitous to have something done for him, and willing to submit to any thing for that purpose ; but his case was such, as to render it not an easy matter to determine what to do.

His rupture was large, and very troublesome ; it was merely omental, and could not be kept up a moment, while he was in an erect posture, without a truss : a truss he could not wear to any good purpose, without the pad of it pressing on the spermatic chord, and aggravating a greater evil than his rupture, *viz.* his scirrhous testicle. The weight of his rupture, added to that of his scirrhus, rendered it impossible for him to get his bread by labor.

The only method, whereby he could be made capable of wearing a proper bandage for keeping up his rupture, or even of suspending it with ease, was, by submitting to have the scirrhus testicle removed by castration ; and then, his rupture being returned, he might be enabled to wear a truss. But to this there were some objections. In the first place, the hernial sac came so low, that the process could not be tied, or cut off, without the sac having been first either laid open, or dissected off from it. In the next place, I did not like the state of the spermatic process, which was both too large and too hard : and in the third place, I thought the general circumstances of his morbid appearance, and bad state of health, were great objections to operations of such consequence, as either the laying open, or dissecting of the hernial sac, from the spermatic process ; or castration.

All this was related to the man in the fairest manner possible, and he desired to have such, or any, operation, performed, which I should think right.

Having been confined to his bed, for more than a week previous to the operation,



tion, the omentum had hardly ever been down during that time, and was now perfectly up. This, tho' it might prove a circumstance in the man's favour, was none in mine as an operator ; for the hernial sac being empty and flaccid, gave me thereby more trouble. The hernia was of the congenial kind ; and, consequently, when I had divided the sac to the bottom, the state of the spermatic chord and testicle was manifest ; and I had only to pass my needle and ligature round the upper part of the former, without paying any more, or particular, regard to the hernial sac. Upon a nearer view of the state of the process, I liked it still less than I had done before ; but there was nothing now could be done, but to go through with the operation, and to take the chance of it. I did so ; the man bore it well, and was better for the first two or three days, than I could have expected. After the first week was past, I was daily surprised at the good state of my patient. He was easy, free from pain or fever, slept well, took nourishment ; and it was impossible for any sore to be, or to look, better.

At the end of three weeks, when he was to all appearance well, and his sore almost

almost healed, he was suddenly seized with pain all over him, and died on the second or third day from this attack.

I had him opened. The portion of omentum, which had formed the hernia, had an attachment to the peritoneum, just within the mouth of the hernial sac ; which, I suppose, was the reason, why it could not be kept up, while he was erect. The lymphatic glands about the lumbal vertebræ were all diseased ; the liver was scirrhus throughout, and had a large collection of matter in its lower part.

F I N I S.



THE HISTORY OF

THE

REIGN OF

CHARLES THE FIRST

BY

JOHN BURNET

OF

THE UNIVERSITY OF OXFORD

IN TWO VOLUMES

LONDON

Printed by J. Streater, at the

Sign of the Gun, in St. Dunstons Church-yard

1679

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H Y D R O C E L E,

By means of a S E T O N.







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W A T R Y R U P T U R E,  
By means of a S E T O N.

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By *PERCIVAL POTT*, F. R. S.  
And Surgeon to ST. BARTHOLOMEW'S HOSPITAL.

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The S E C O N D E D I T I O N.

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Printed for L. HAWES, W. CLARKE, and R. COLLINS,  
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## A C C O U N T, &amp;c.

**A**N Hydrocele is so irksome a disease to the indigent and laborious, furnishes even the easy and opulent with such disagreeable ideas and apprehensions, and is to all who are afflicted with it so troublesome and inconvenient, that every rational attempt toward relieving mankind from such an evil, will, I make no doubt, be favourably received.

It is now some years since I first began to make particular inquiry into the nature of this, and some other diseases of the testicle, and the usual methods of treat-

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ing them ; an inquiry, which they appeared to me, for many reasons, both to deserve, and require. The result I communicated to the public, under the title of, A “ Treatise on the Hydrocele, or “ Watry Rupture, and other diseases of “ the testicle, its coats and vessels ;” in which I endeavoured to be as precise, and as explicit as I could.

One part of this tract contains an examination of the various means, which have at different times, either accidentally produced a radical cure, or have been professedly proposed, and practised for such purpose.

Among other means used to obtain this end, I mentioned the Seton ; and spake of it as that, which for many reasons, appeared to me to be preferable to all others ; as a method which I  
had

had for some time practised with great success, and as that, which if nothing should occur to induce me to change my opinion, I should continue to make use of.

Since that time I have had frequent opportunities of repeating the experiment, and it has so constantly, and uniformly answered my expectation, that my opinion concerning it is determined, and I am convinced, that it is the most successfully efficacious of any.

This might be urged, and would perhaps be admitted as a good reason for laying my thoughts on the subject again before the public ; but I have others also to plead in vindication of the few following pages.



In the first place, I think that I have considerably and materially improved the operation and process ; and have rendered it less painful, and more certain.

In the second, I find, that what I said of it in the general treatise, has not been so clearly and perfectly understood as I could have wished ; and in consequence either of brevity and obscurity on my part, or misintelligence on the part of some of my readers, my true meaning has not been received, and I have been subjected to the frequent interruption of troublesome correspondences on the subject.

And, in the third place, I might add, that some few gentlemen of consequence, who have by this means been cured, have requested this publication.

A minute account of the nature and circumstances of the disease, would be a mere repetition of what I have already said at large in the book referred to; would be therefore unnecessary, and beside my present purpose; a short and cursory one may perhaps throw just as much light on the subject, as may serve to render the description of the operation, and the treatment after it, more easily intelligible.

The common bag in which both the testicles are included, is called the Scrotum, and consists of epidermis, skin, and that loose cellular membrane, which is here called the Dartos; to which might perhaps be added, the expanded fibres of the cremaster muscle on each side. The proper coats of the testicle, are, the tunica albuginea, and the tunica vaginalis. The former of these immediately



ately invests the vascular compages of the testis, and is that coat with which it is covered while within the cavity of the abdomen, before birth. The latter is formed on the outside of the said cavity, is a process of the peritoneum, and is placed ready for the reception of the testicle when it shall be thrust forth, thro' the groin, into the scrotum. Between the vascular structure of the testicle, and the tunica albuginea, there is no vacuity, but the external surface of the gland, is in every part firmly adherent to, and connected with the internal one of the investing coat; the tunica vaginalis forms a hollow cavity, or bag, which loosely, and unconnectedly envelopes the testicle, covered by its albuginea.

When I say loosely and unconnectedly, I would wish to be understood aright. I do not mean that the testicle hangs  
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in the middle of the tunica vaginalis, (like a clapper within a bell) and has no connection with it; I mean, that all the superior, anterior, and lateral parts of the tunica vaginalis are loose from, and unconnected with the testicle, which is at the same time firmly united to its posterior part, in such manner, that if the cavity of the tunica vaginalis was to be distended with wind, such wind would occupy, or fill all the loose, and unconnected part, and produce a tumefaction not unlike to a hydrocele, while the testicle would be found firmly and immovably attached to the hinder part of the said cavity so distended.

To prevent the accretion of these coats in those parts where they ought to be unconnected, and perhaps for some other purposes, the cavity of the tunica vaginalis is furnished with a fine lymph  
con-



constantly exuding into it; which lymph is as constantly absorbed by proper vessels; so that, in a healthy and natural state, there never is any more of this fluid, within the bag, at a time, than may just serve (beside what other purpose it may be intended for) to keep the two membranes from coming into immediate dry contact, and cohesion with each other. This small quantity is sufficient to preserve the proper and natural cavity of the tunic, but never occasions any degree of intumescence, or any unnatural or diseased appearance of the part.

A deficiency, or total failure of the secretion of this fluid, will be followed by a partial, or total coalescence of the two coats, with each other; and consequently a total or partial abolition of the cavity, a super-abundance, or a secretion of more than the absorbent vessels

can

can take up, must, on the other hand, enlarge and distend, the said cavity, by carrying all the loose unconnected part of the bag farther and farther from the testicle, in proportion to the quantity accumulated. The former, I do know to be sometimes, and I verily believe most frequently is, the consequence of a severe hernia humoralis, as well as of other inflammations of the testicle. The latter among other diseases produces the hydrocele or watry rupture.

This being the case, that is, the intumescence of the scrotal bag, being caused by the gradual accumulation of a fluid, which ought to have been absorbed, it is almost always produced gradually; and therefore has, in most instances, made some progress before it is taken notice of; especially by careless and inattentive people. For the same reason



it will be found, that as it depends upon the circumstances of secretion and absorption, it will in different people, make quicker or slower progress, according as the deposition shall happen to be quicker or slower, and the absorbent faculty, only more or less impaired, or totally obstructed. As this disease is confined to the cavity of the tunica vaginalis testis, and as this bag has no communication with the cavity of the belly, the tumefaction can never be lessened by any attempt toward reducing or returning it into the abdomen. For the same reason, it never is, nor can be liable to any alteration of size, or temporary distention from the efforts, or actions of coughing, sneezing, expulsion of fœces, &c. For the same reason, (I mean the confinement of the fluid within the cavity of the tunica vaginalis) the intumescence, when early attended to, will  
always

always be found in the lower part, and does not rise above the upper-part of the testicle, until the disease has made some progress, and the quantity is become considerable; therefore the spermatic process, will always, in the early stage of this distemper, be capable of being felt perfectly and distinctly; altho' when the tumour has arrived to any considerable degree of size, the fluid does so conceal the testicle, as to render it not a very easy matter to find it. The three last circumstances, well attended to, will always serve to distinguish the hydrocele from the intestinal hernia or common rupture, at least in the beginning. To these might be added, several other characteristical marks of this distemper; such as, that being neither accompanied by, nor occasioning any inflammation, or irritation, it never gives pain, unless it be very rudely handled, or be permit-



ted to attain such size as to be troublesome from its weight, or to be subject to excoriation from its magnitude ; which may serve to distinguish it from the hernia humoralis, an inflammatory, and often a very painful disorder. That if the fluid be thin and limpid, and the vaginal coat and membranes of the scrotum not thick, the tumour is often in some degree transparent ; that is, the light of a candle or lamp may be seen through it. That constipation of belly does not render it at all more tense, or produce any uneasiness in it while it lasts ; neither does the removal of such obstruction or constipation at all lessen its volume, or make any alteration in it either to the eye, or to the finger. To all which ought always to be added, the *fluctuation of the fluid.*

The size and figure of the tumour caused by this disease are liable to considerable variety, dependant upon the quantity and consistence of the fluid accumulated, the time such accumulation may have taken up, the thickness, or thinness of the vaginal bag, and membranes of the scrotum, and the equal or unequal manner in which these parts may have given way to the distention. Hence the tumour will be larger or smaller, round, flattish, pyriform, or globular; will be firm, tense, and resistant, or lax, soft and easily compressible; smooth and regular in its surface, making one uniform figure, or divided by a kind of depression or stricture, which will make it appear as if the water was in two distinct sacculi or bags; it will also be more or less tense, as well as regular in its surface, as the contractile power of

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of the scrotum, by means of the cremaster muscles, shall be more or less.

The qualities of consistence and colour in the contained fluid is also various: it is thin, aqueous, roapy, viscid, limpid, citrine, greenish, brown, bloody, clear, or turbid; from each of which some small differences in the aspect, feel, weight, transparency or obscurity of the tumour will arise; but are of no consequence with regard to any method of treatment, palliative, or radical.

The methods of cure of a hydrocele are said to be two, one called the Palliative, the other the Radical; the latter of which alone deserves the name of cure.

The former consists merely in letting out the water occasionally, and is so simple and so trifling an operation, that I shall say nothing more of it, than that I think a small trochar a much preferable instrument for this purpose on all accounts to the lancet, or any other.

The radical cures, as they are called, may be collected from the writings of several of our predecessors. The general means they made use of were cautery, caustic, ligature, and tent. For the particulars relative to each of these, I must beg leave to refer my reader to the writers themselves, a minute detail of them not being consistent with the plan of these few sheets. But without entering into such disquisition, I believe I may venture to say, that whoever will give himself this trouble, will find, that

all



all the means which were either professedly used to obtain a radical cure, or which ultimately and accidentally produced such event, were put in practice for three general reasons, or under the influence of three general opinions; the first of which was, that the fluid found in the sac of a hydrocele was always originally formed in the cavity of the belly, and descended from thence into the scrotum; the second, that it was a disease of the habit, as well as of the particular part; that is, that it was general, as well as local; the third, that the collection of liquor found in it, was either the necessary cause, or the consequence, of a diseased state of the testis.

From these flow the applications of cauterly, and caustics to the groin, and of ligatures on the spermatic process.

From

From these are derived all the cautions to undertake the cure guardedly, to conduct it slowly, and to attend rigidly to the patient's general state by cathartics, alteratives, specifics, issues, &c. &c. &c. and to these we owe the experiments made to induce suppuration from the parts affected.

Not being acquainted with the anatomical structure and disposition of the parts concerned in the disease, they had very terrible as well as very erroneous notions concerning it. They supposed that the fluid contained in the cyst was thrown off from the habit as a kind of crisis; that the general constitution of the patient was by such deposition much relieved; that it prevented many other, and those worse disorders; and, either that a morbid state of the testicle and epididymis concurred in producing the fluid, or that the same parts necessarily became diseased from lying in it. They therefore concluded,

D that



that although a radical or perfect cure might be obtained by certain means, or that certain means having been found now and then to have produced such event, they might with probability be expected to answer such purpose, yet the attempt ought never to be made without a strict attention to the general evils which might ensue, as well as to the particular ones proceeding from the supposed morbid state of the parts.

Inquiry and experiment have taught us better, have given us truer notions of the nature of the complaint, have induced us totally to lay aside many of the means used by our fore-fathers, and although we do still in some sort continue some of them, yet it is upon different principles, and with very different views.

The noxious quality of the fluid, the diseased state of the parts whence it proceeds, or wherein it is deposited, the critical, or depuratory nature of the deposition, the necessity of drawing off the water partially and at short intervals, and the fear of curing it locally lest the general habit should suffer, are all now known to be groundless apprehensions; and it being also known that the collection of fluid is originally made in the tunica vaginalis only, and that it does not descend from the belly, all attempts toward preventing such descent are become equally absurd.

The testicle, although frequently somewhat enlarged in its dimensions and relaxed in its texture, is known to be sound, to be otherwise unaffected, and unaltered, and to be fit for, and capable of performing the functions it was designed to execute; the fluid is acknowledged to be in-



noxious in its nature, neither proceeding from parts in a diseased state, nor causing any disease in the parts in which it is deposited, and with which it is in contact; but being accumulated in consequence of constant secretion, and deficient, or non-executed absorption, the intention of every rational practitioner, when he aims at a radical cure, is, to abolish the cavity of the tunica vaginalis, and thereby to prevent any future collection.

Whatever means can accomplish this end with the least fatigue, pain, or hazard, are certainly the best.

Of the incision I shall in this place say nothing, except that it lies under so many restraints from a variety of circumstances, is so improper for the majority of persons afflicted with the disease, and requires such nice attention and such judicious management, that it never can be recommended as fit for general practice.

The caustic, upon the rational principle of which I am now speaking, viz. that of abolishing the cavity of the tunica vaginalis, has been practised by many, and that with such success as to induce some to think it the best and most eligible method: Among these is Mr. Elfe, who has lately published his opinion on the subject.

The introduction of suppurative medicines by means of a tent, was practised by some of even our remote predecessors, and as they tell us with success, even in complicated cases; that is, in cases where a diseased state of the testicle has been added to the hydrocele: But whoever will attentively consider their accounts of this matter will see, that this method, whatever might be its accidental consequence, was not intended for the purpose which I am now speaking of.

Perhaps



Perhaps there is no part of surgery which was less understood by our ancestors, or concerning which they expressed themselves with so little precision as the subject of diseases of the testicle: they have multiplied and confounded them in such manner, and speak of them in such a jargon of unintelligible terms, that it is next to impossible to understand often what they really mean.

For a particular elucidation of this subject the chirurgic world are much obliged to the late Professor Monro of Edinburgh, and Mr. Samuel Sharp, late of Guy's Hospital, now of Bath.

The accounts which many of the best among the writers in surgery, even quite into our own time, have given of the diseases of these parts under the terms farcocele, fungus attached to the spermatic vessels, fungus arising from the testis, hydrocele

drocele and hydro-sarcocoele, are error itself; and the operations which they describe and recommend are many of them coarse, and either impracticable, or very unfit for practice. But however from these accounts, strange and irrational as they are, we may collect that they conceived the diseases which they call the hydro-sarcocoele, and the *caro adnata ad vasa spermatica*, to be (in contradistinction from the sarcocoele and the fungus springing from the testicle,) curable diseases, the one by extirpation of the fungus, the other by supuration.

No precise definition of what they have thought proper to call the hydro-sarcocoele has been given by them, and therefore we have no better method of forming a judgment concerning it, than by considering the event and success of their method of treating what they have so called, with what we know concerning the structure  
of



of the testicle, its disorders, the means which we now find to be successful in them, and the disappointments, and disagreeable circumstances which sometimes occur in them.

Fabritius ab Aquapendente has been particular on what he calls the hydro-farcocoele, and has given an account of his method of curing it; but whoever is acquainted with diseases of the testicle, and will compare with such knowledge what Fabritius has said concerning his method and its success\*, will, I am inclined to believe, think on this subject as I do, which is, that the disease which he gives this hard complex name to, is nothing more than a  
true,

\* “ Si carnosæ simul et aquosæ sit hernia ego talem  
“ adhibeo curam. Seco cutem et incisionem facio  
“ exiguam, et in loco potius altiori quam in fundo,  
“ inde turunda imposita, cum digestivo et pus movente  
“ medicamento procedo, neque unquam totum pus  
“ extraho, sed perpetuo bonam intus relinquo, quod  
“ sensim carnem corodat & ita sanat. FAB. AB  
“ AQUAPENDENTE.”

true, simple hydrocele, in which the testis is somewhat enlarged beyond its natural size, and perhaps somewhat relaxed in its texture, in consequence of such enlargement; but still sound, and free from disease, still fit for, and capable of executing its office.

That by his method he obtained a radical cure I make no doubt; his ‘*turunda digestivo, et pus movente medicamento imbuta,*’ would most probably occasion a sloughing of the tunica vaginalis, and consequently an abolition of the bag or cavity; but whoever knows any thing of these matters must know, that a testicle really and truly diseased, would not bear such treatment; and therefore that his success was owing to the state of the testicle *not being* what he supposed it to be, and what the term he makes use of implies.



The method of Fabritius was within a few years past adopted and practised by Ruysch.\*

The means and conduct were nearly the same, and I have no doubt that the success was equal. But the same objection still remained; which was, that not only a suppuration was brought on, but the whole tunica vaginalis was so irritated and inflamed, that it necessarily became sloughy, and was entirely destroyed. An objection which had been made to the method by caustic, and which I must acknowledge,

“ \* Sanari quidem valet id mali pertuso scroto ope  
 “ instrumenti trochert dicti, vel lanceola phleboto-  
 “ mica ut aqua vulnere exeat, sed cito plerumque  
 “ recrudescit *malum*.

“ Si *autem* curationem aggredieris aperiendo scro-  
 “ tum a parte superiori, ad latus, tuncque vulnus  
 “ turunda oblonga, unguento rosaceo mercurio præ-  
 “ cipitato rubro inuncto oppleveris donec lenis in-  
 “ flammatio, eique succedens suppuratio parva, mem-  
 “ branules stillantes putrescerit tuncque eas tenaculo  
 “ eduxeris, &c. RUYSCH.

knowledge, is, in my opinion, an objection to it still.

The late professor Monro, whose observations on the diseases of the testicle are very pertinent and very ingenious, seemed to think that it was by no means impracticable, by means of a slight degree of irritation, to excite such an inflammation both in the tunica vaginalis and albuginea, as might occasion a coalescence of them with each other, and thereby answer the end of abolishing the cavity without destroying any part of either tunic.

I made the experiment proposed by him, and found it sometimes successful, never hazardous, or prejudicial, but by no means certainly efficacious, or to be depended upon. The cannula by its hardness and resistance was a very unpleasant guest within the vaginal coat, and from



its inflexibility, upon any unguarded motion of the patient, injured the testicle and gave very acute pain; and the tent and bougie, which I occasionally substituted in its place, although they did not give so much pain, were liable to a considerable degree of uncertainty.

Uncertainty and hazard are certainly very different things, and the latter much preferable to the former: not to have injured a man by an experiment, affords some degree of consolation under a disappointment, but yet when it is considered, that an operation and process of this kind is submitted to from choice and not from necessity, if it fails of success, although no real harm be done either to the part, or to the constitution of the patient, both the loss of time and the confinement will become doubly irksome, as they will be found not only not to have answered the end proposed, but not to have brought  
the

the patient at all nearer to a cure than he was before the attempts. The reflexion is unpleasant to both parties.

Being, from the effects both of the canula and tent, satisfied that there was no kind of hazard in the introduction of a foreign body into the cavity of the tunica vaginalis, nor from its remaining there; and having many opportunities of meeting with this disease in St. Bartholomew's, I determined to try what a seton would do toward raising such a degree of inflammation as might occasion a coalition of the two membranes, and effect the purpose proposed by Professor Monro\*. The success fully answered my expectation.

In

\* His words are, " Considering how readily contiguous inflamed parts grow together, and how many instances there are of people having a radical cure made of this hydrocele by inflammations coming on the part, it would seem no unreasonable practice to endeavour a concretion of the two coats  
" of



In my general treatise on the diseases of the testicle, I mentioned and recommended it, but as I could not be certain what a greater length of time might produce to make me change my opinion, I mentioned it with some degree of caution.

Since that time I have embraced every opportunity, both in the hospital and out, of practising it, and that under some

“ of the testicle when they are brought contiguous,  
 “ after letting out the water through the cannula of a  
 “ trochar, by artfully raising a sufficient degree of  
 “ inflammation.

“ This to be sure must be done cautiously, and so  
 “ that the surgeon can reasonably expect to be master  
 “ of the inflammation, and therefore the application  
 “ of all irritating medicines, the operation of  
 “ which he could not immediately stop, or any single  
 “ mechanical effort the effect of which he could  
 “ not be sure of, are not to be employed.

“ Suppose the canula of the trochar was to be left,  
 “ by the extremity of it rubbing against the testicle  
 “ an inflammation might be artfully raised, the cause  
 “ of which might be taken away as soon as the surgeon  
 “ thought fit.

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some improvements; and as I can now speak positively to its success, I thought it right to give it to the publick, who are always intitled to every benefit arising from the labours of every man whom they have honoured with any degree of confidence, and this as well on a principle of humanity as of gratitude.

What I have said of it in the general treatise is in the following words, p. 176.

“ The point to be aimed at, is to excite  
 “ such a degree of inflammation both, in  
 “ the tunica vaginalis and tunica albugi-  
 “ nea, as shall occasion a general and per-  
 “ fect cohesion between them; and this,  
 “ if possible, without the production of  
 “ slough or abscess; without the hazard  
 “ of gangrene, and without that degree of  
 “ symptomatic fever which now and then  
 “ attend both the caustic and the inci-  
 “ sion; and which, when they do hap-  
 “ pen,



“ pen, are so alarming both to patient and  
“ surgeon.

“ These ends I have frequently ob-  
“ tained by the use of a seton.

“ It is a method of cure mentioned by  
“ Aquapendens from Guido, and others  
“ before him, though their process was  
“ somewhat different from mine. I have  
“ several times tried it on subjects of very  
“ different ages, some of them more than  
“ fifty years old. It requires confine-  
“ ment to bed only for a few days, after  
“ which the patient may lye upon a  
“ couch to the end of the attendance,  
“ which is generally finished in about  
“ three weeks or a month at farthest, and  
“ during all that time no other process or  
“ regimen is necessary, than what an in-  
“ flammation of the same part from any  
“ other cause, (for example a hernia hu-  
“ moralis) would require.

“ The

“ The manner of performing it is as  
 “ follows. Choose a time when the  
 “ vaginal coat is moderately distended,  
 “ and having pierced it with a trochar,  
 “ of tolerable size, draw off the water;  
 “ when that is done, introduce into the  
 “ cannula a probe armed with a seton  
 “ consisting of ten or twelve strings of  
 “ candle-wick cotton; pass the probe as  
 “ high to the upper part of the vaginal  
 “ coat as you can, and on the end of  
 “ that probe make an incision of such  
 “ size as to enable you to pull it out  
 “ easily, together with a part of its an-  
 “ nexed seton; then cut off the probe,  
 “ and tie the cotton very loosely, co-  
 “ vering the orifices with pledgets. By  
 “ the next day the seton will be found  
 “ to have contracted such an adhesion to  
 “ the tunica albuginea as would cause a  
 “ great deal of pain to detach; but this  
 “ it is perfectly unnecessary to do, and it



“ should be suffered to remain without  
 “ molestation. In about forty-eight hours  
 “ the scrotum and testicle begin to swell  
 “ and inflame; the patient should then  
 “ lose some blood, and have a stool or  
 “ two, and the whole tumefied part  
 “ should be wrapped in a soft poultice,  
 “ and suspended in a bag-truss. The  
 “ disease from this time bears the ap-  
 “ pearance of a large hernia humoralis,  
 “ and must be treated in the same man-  
 “ ner, by fomentation, cataplasm, &c.

“ The adhesion of the seton to the  
 “ albuginea generally continues firm, and  
 “ I never meddle with, or move it, till it  
 “ becomes perfectly loose, which it seldom  
 “ does for the first fortnight, or until the  
 “ inflammation is going and the tumor  
 “ subsiding. By the time the seton be-  
 “ comes loose, the coalition of parts is  
 “ universally and firmly accomplished. I  
 “ then

“ then withdraw it, and heal the orifices  
 “ with a superficial pledgit, &c.”

This method was, as I said in, general very successful; but repeated trials furnished me with objections to some parts of it, and induced me to think that such parts might be amended.

I found that cutting upon the end of the probe was troublesome, both from its smallness and from its flexibility, and also that it was sometimes difficult to keep it steady, for the same reasons, and that it always required the assistance of another person's hand besides that of the operator: a circumstance one would always wish to avoid when possible. I found also sometimes that the seton of candle-wick cotton did not pass so easily as I could wish, and by rubbing the tunica albuginea too rudely gave more pain than I liked. The seton as made of cotton



adhered in some instances too long and too firmly. From the intimate connection of the parts of the wet cotton with each other, it could never be brought away but entire, which in some cases occasioned an unnecessary waste of time. And, what was still worse, in two instances it adhered so firmly, that I was obliged to make a small incision to get it away at all.

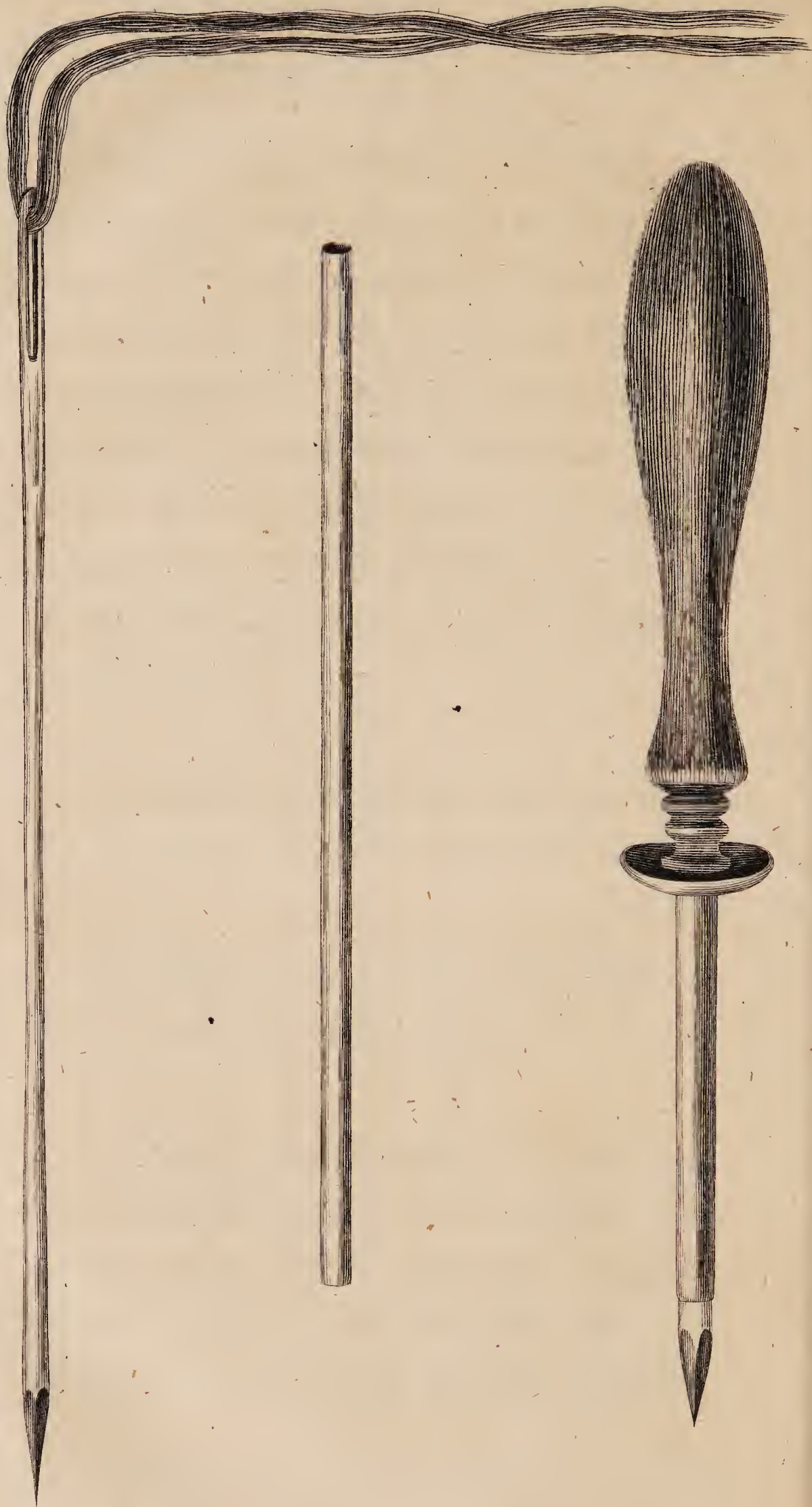
All these inconveniences and objections I have now obviated and removed.

The instruments I now make use of are in the annexed plate, and are,

A trochar, the diameter of whose cannula is very nearly, but not quite, one fourth of an inch. Another cannula, which I call the seton-cannula, which is made of silver, and is of such diameter







as just easily to pass through the cannula of the trochar, its length five inches, and a probe of six inches one-half long, having at one extremity a fine steel trochar point, and at the other an eye which carries the seton ; which seton consists of just so much strong, coarse, white, sewing silk as will without difficulty pass through the latter cannula, but at the same time will fill it.

With the trochar the inferior and anterior part of the tumor is to be pierced, as in common palliative tapping : as soon as the water is discharged, and the perforator withdrawn, the seton-cannula is to be passed through that of the trochar, until it reaches the upper part of the tunica vaginalis, and is to be felt in the very upper part of the scrotum. This done, the probe armed with its seton is to be conveyed through the latter cannula, the vaginal coat and integuments to



to be pierced by its point, and the seton to be drawn through the cannula, until a sufficient quantity is brought out by the upper orifice. The two cannulæ are then to be withdrawn, and the operation is finished. It is executed in two or three seconds of time, and with little more pain than is felt in common tapping.

By this method, every advantage which attended the former operation is obtained, and every inconvenience which it was liable to, is obviated and provided against.

The seton-cannula by its firmness bears tight against the place where the seton should be brought out, the trochar-point of the probe is kept from deviating by its confinement, and its point pierces through the skin immediately, and exactly in the place intended, while the seton by passing through the cannula is

pre-

prevented from rubbing rudely over the testicle.

As soon as the operation is finished I put the patient into bed, and immediately give him twenty or twenty-five drops of *tinctura thebaica*, which I repeat or not, *pro ne nata*.

About the third day the testicle and scrotum begin to inflame and swell, and to put on the appearance of a *hernia humoralis*, or the swelled testicle which now and then attends a clap; and requires the same and no other kind of treatment; that is, fomentation, poultice, a suspensory bag, a cool temperate regimen, and an open belly.

By these means the inflammation is soon and easily appeased. As soon as this end is accomplished, I permit the patient to get out of bed and lie on a couch, or  
fit



fit in a great chair with his legs up, and I generally give the cortex in some form or other twice or thrice a day.

The forenefs and tumefaction now diminish apace, and as soon as the parts are quite eafy, which is generally about the tenth or twelfth day, I begin to withdraw the feton, taking out, four, five, fix, or feven threads of it at each dressing, which dressing confifts of nothing more than a superficial pledget upon each of the orifices while they continue open, and a difcutient cerate (fuch as the ceratum faturnin.) to cover the fcrotum.

The difcharge of matter from the orifices, is fmall and trifling, no more than might be expected; the tunica vaginalis does not become floughy, but is preferved intire, and the cure is accomplished, merely by the coalefcence or cohesion of the tunica vaginalis, with the tunica albuginea.

buginea. An event, which from what has fallen within my observation, I am inclined to believe, is most frequently the consequence of a severe hernia humoralis.

In this circumstance, viz. the accomplishment of the cure, by adhesion of the two coats together, without any destruction of parts, consists the material difference between the method of cure by seton, and that by caustic.

All the practitioners who make use of the latter allow, that it produces a slough of the whole tunica vaginalis, that it destroys the whole bag or cyst, and that it is used with intention so to do.

In the cure by seton no slough is produced, (at least I have never seen one) nor is the vaginal coat destroyed in any part of it; a firm cohesion is made between the two membranes occasioned by



the inflammation; and the cure is effected solely thereby.

I shall always most gladly embrace any opportunity to improve so noble and so really useful an art as surgery; but, at the same time, should be very sorry to have it supposed, that any partiality to my own opinion would make me misrepresent, or deviate from truth.

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Since this pamphlet first appeared, Mr. ELSE has published a second edition of his account of the cure by caustic.

In this he has recited two attempts by the seton, which were under the conduct of Mr. Martin, in St. Thomas's hospital.

I make no doubt that the circumstances were as Mr. ELSE has related them; but I must take the liberty of saying, that  
al-

although I have practised the method of cure by seton, on a very considerable number of people, both in the hospital of St. Bartholomew, and out of it, of all ages, and in all circumstances, I have never yet met with that trouble, or those disagreeable symptoms which Mr. ELSE has related as happening to Mr. Martin's two patients; on the contrary, I am, from very frequently repeated experience, convinced, that the cure by the seton is by much the least hazardous, painful, or fatiguing, as well as the most expeditious and certain of any yet proposed.

F I N I S.



The first of the year was a very  
cold one, and the weather was  
very disagreeable. The snow  
was very deep, and the wind  
was very strong. The people  
were very much distressed,  
and the cattle were very  
suffering. The people were  
very much distressed, and the  
cattle were very suffering.  
The people were very much  
distressed, and the cattle were  
very suffering. The people were  
very much distressed, and the  
cattle were very suffering.

The second of the year was a  
very warm one, and the weather  
was very pleasant. The snow  
was very shallow, and the wind  
was very light. The people  
were very much pleased,  
and the cattle were very  
suffering. The people were  
very much pleased, and the  
cattle were very suffering.







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